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Transition To Upper Secondary School In
Mexico: New Insights Into Selection And
Education Expectations

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Thesis submitted to the University of
Sussex for the degree of PhD in Education

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Declaration

I hereby declare that this thesis presented for examination for the PhD degree in Education of the University of Sussex is solely my own work and has not been and will not be, submitted in whole or in part to another University for the award of any other degree.

Signature:.....

UNIVERSITY OF SUSSEX
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PHD IN EDUCATION
TRANSITION TO UPPER SECONDARY SCHOOL IN MEXICO: NEW INSIGHTS INTO
SELECTION AND EDUCATION EXPECTATIONS
SUMMARY

The thesis investigates whether there are different patterns of 15 year-olds' selection and educational expectations, according to the different transition processes that exist in Mexico. To accomplish this objective three research questions guide the analysis. First, what are the underlying factors that affect the different transition processes to UPS level used in different States in Mexico? Second, what are the characteristics of 15 year-olds selected at UPS and how do they differ in States that use different transition processes? Third, how do 15 year-old students' educational expectations differ by the transition processes used where they live?

To answer these questions I use essentially a quantitative study. I perform a political economy analysis of the transition to UPS in Mexico using a documentary review. I develop a characterisation of the different transition processes. Additionally, I investigate the relationship between the different transition processes and students' socioeconomic background, achievement and expectations. The analysis uses data from the Programme for International Student Assessment (2009) and marginalisation information from the National Council of Population (2010). The methods used are statistical descriptive analysis and regression analysis (quantile regression, ordered probit model and sensitivity analysis).

The political economy analysis provides a characterisation of the transition process to upper secondary level based on the standardisation of admission procedures and the extensiveness in the use of entry examinations. The results of the political economy analysis of the transition process suggests that States with more structured education systems tend to have homogeneous transition processes, while in States with less structured education systems, schools and entry examination institutions tend to have a stronger influence on the transition process and ergo the procedures are heterogeneous.

Homogeneous processes tend to promote a more balanced intake of students according to their social background, regardless of whether they use entry examinations or not. Also, the selection of UPS appears to be more efficient at processes that have the most extensive use of examination and homogeneous procedures. Therefore it is inferred that the standardisation of procedures could be positive for the effectiveness and efficiency of the selection at UPS as homogeneous procedures were found also to be associated with slightly higher educational expectations on students.

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Acronyms

ANMEB - National Agreement for the Modernisation of Basic Education (Acuerdo Nacional para la Modernización de la Educación Básica)

CENEVAL - National Centre for Evaluation (Centro Nacional de Evaluación)

CONAPO - National Council of Population (Consejo Nacional de Población)

CNTE - National Teachers Union (Coordinadora Nacional de Trabajadores de la Educación)

EXHCOBA - Basic Ability and Knowledge Exam (Examen de Habilidades y Conocimientos Básicos)

FG - Federal government

HE - Higher Education

LGE - General Education Law (Ley General de Educación)

LS - Lower Secondary

MAC - Minimum Admission Criteria process

MixAC - Mixed Admission Criteria process

OECD - Organisation for Economic Co-operation and Development

PISA - Programme for International Student Assessment

PIRLS - Progress in Reading Literacy Survey

PG - Postgraduate degree

QR - Quantile regression

SBEE - School-based Entry Examination process

SD - Standard deviation

SEE - Standardised Entry Examination process

SEM - Sub-ministry of Upper Secondary Education (Subsecretaría de Educación Media Superior)

SEP - Education Ministry (Secretaría de Educación Pública)

SNTE - National State Workers (Union Sindicato Nacional de Trabajadores del Estado)

UPS - Upper Secondary

UG - Under Graduate

Introduction

There is consensus that the longer young people stay in education, the more chances they may have to acquire the skills needed to function in society and overcome poverty. Since 2000, as a result of the World Education Forum in Dakar, Senegal, governments and aid donors have acted to provide universal primary education (UPE) with a focus on equity (UNESCO 2009). As a result, remarkable gains have been registered and many countries have now accomplished UPE. In some middle-income countries, this achievement has increased demand for post-basic education and post-compulsory education systems are struggling to handle the situation (UNESCO 2009). This is the case in Mexico, where those aged 15 and above achieve on average 9 years of schooling (Consejo Nacional de Población 2010), which is equivalent to completing lower secondary (LS). As a consequence, the demand for upper secondary level (UPS) education has progressively increased in the past 10 years, putting increasing pressure on the post-compulsory education system (Instituto Nacional para la Evaluación de la Educación 2011).

Mexico is a federal republic and, at State level, huge differences can be found in the situation of post-compulsory education systems. Not only are there differences in the proportions of students of official UPS age (15 year-olds willing to continue studying after completing LS), but also there is great discrepancy on the number of schools available to them (Instituto Nacional para la Evaluación de la Educación 2011). As the demand for UPS education has increased unevenly, in some States public schools have introduced additional mechanisms of selection to allocate scarce spaces. Furthermore, as neither the Federal nor State governments have regulation on the mechanisms and procedures for the transition to UPS, students face different modes of selection and admission that vary according to where they live.

This thesis is motivated by my personal interest in how selection mechanisms may operate as a bottleneck for students' progression through education. I first came across the topic when interviewing students in two contrasting LS schools, located in the wealthiest and poorest States of Mexico for my masters' dissertation research. That research explored poorer students' motivations to continue studying UPS in different development contexts. My findings suggested that

students have doubts about their chances to progress and struggle to understand the procedures in the transition. More interestingly, I found out how different the processes of transition are according to where students live and how such differences seemed to be associated with students' perceived chances of selection and expectations about their future.

The findings of my masters' dissertation further motivated me to continue studying at doctorate level the modes of transition to post-compulsory education and their relationship with students' selection and education expectations. Thus, the main objective of this thesis is to investigate whether there are different patterns of 15 year-olds selection and educational expectations according to the different transition processes that exist in Mexico. To accomplish the objective the thesis is guided by the following three research questions:

1. What are the underlying factors that affect the different transition processes to UPS level used in different States in Mexico?
2. What are the characteristics of 15 year-olds selected at UPS and how do they differ in States that use different transition processes?
3. How do 15 year-old students' educational expectations differ by the transition processes used where they live?

The methodology I use to answer these questions involves predominately a quantitative approach. First I perform a political economy analysis of the transition to UPS in Mexico. I focus on the grounds of the transition processes used at State level and use documentary analysis to collect information on their differences. As a result of this analysis I present a characterisation of the transition processes, which I use further in the study. This analysis is important because, to my knowledge, no study has been done before on the processes of transition to UPS level in Mexico and how they vary between States.

The dissertation investigates the relationship between the different transition processes used and students' selection and expectations about their future. This uses data from the Programme for International Student Assessment (PISA) collection for Mexico in 2009 and marginalisation information from the National

Council of Population (CONAPO) 2010. The methods of analysis use different regression techniques such as: quantile regression analysis, ordered probit models and sensitivity analysis to provide statistical descriptions. This analysis has a relevant contribution to the field of education as to my knowledge there is not research on whether the differences in transition processes in Mexico affect students' selection or expectations. Additionally, the use of quantitative methods has allowed me to use a relatively large scale of data; which maps the studied relationships across the country. In doing so I manage to highlight the complexities of the transition to UPS in Mexico and serve as foundation for future research. Finally, as most types of selection and admission mechanisms employed around the world are found in the example of the transition to UPS in Mexico. I provide insightful information on how different mechanisms of admission and selection may affect students' selection and expectations in similar contexts to Mexico.

The thesis is structured in eight chapters. In Chapter 1 I introduce the debate concerning the relationship between modes of admission and the selection of students. I provide a review of admission and selection mechanisms using international literature and experiences from other countries. I also offer a review of the types of assessment used for selection or admission purposes. Most importantly, Chapter 1 presents the existing theories that explain the use of current admission and selection mechanisms. Those theories relate to the socio-political, economic, and psychological foundations of selection and admission mechanisms, which guide this dissertation.

Chapter 2 follows up on the three theoretical approaches presented in Chapter 1. From an economic perspective, this chapter presents how educational transitions and their means of admission affect students' selection. The selection of students is studied in two aspects: on one hand, by students' social background (effectiveness of the selection) and on the other hand, by the achievement of students' selected (the efficiency of the selection). Furthermore, this chapter reviews the psychological literature on the effect that education transition and its means of selection have on students' education expectations.

Chapter 3 presents the methodology and methods used in the dissertation. This chapter presents the research questions and objectives that the dissertation

addresses. Also I define the scope of the investigation and summarise the limitations. Furthermore, in Chapter 4 I present the general situation of LS and UPS education in Mexico. This chapter's main objective is to contextualise the study within the national education system, outlining the particular situation of LS and UPS levels.

Chapter 5 is guided by the socio-political theory presented in Chapter 1 and presents a political economy analysis of the transition from LS to UPS level in Mexico. This chapter explores the processes of transition to UPS and studies how it works across States. I provide a characterisation of the transition process to UPS by State level. This characterisation is further used in the analyses of chapters 6 and 7.

Chapter 6 has its foundation in the economic approach presented in Chapter 1 and investigates the relationship between the different transition processes and 15 year-old students' selection at UPS level. For the analysis I use quantitative methods to study whether there are distributional shifts in the socioeconomic background and reading scores of LS and UPS students under different transition processes.

Chapter 7 has its foundation in the psychological approach presented in Chapter 1. The chapter studies the relationship between the different transition processes to UPS and 15 year-old students' education expectations.

Finally in Chapter 8 I present a discussion of the most important results. I also highlight the limitations of the research and point out policy implications and further areas of investigation.

Chapter 1. Admission mechanisms and student selection

This chapter introduces debates concerning the relationship between the admission and selection mechanisms and the selection of students during education transitions in Mexico. This relationship has been proven to be particularly important in the transition to upper secondary (UPS) level where education systems are facing a continuous increase in demand that had led to more places required than the systems have available (Caillods 2007). In this first chapter I explore the theoretical background of admission mechanisms and assessment and their use to select or grant admission to UPS students based on international evidence. Some of the literature reviewed here focuses on admission mechanisms beyond UPS (mostly at university or tertiary education). This literature is relevant because the admission mechanisms at UPS have become more competitive and are therefore sharing important characteristics with the type of selection used at higher education (HE).

The chapter is structured into five sections. In Section 1.1 I provide a review of admission and selection mechanisms. Section 1.2 offers a review of the types of assessment that are being used based on international evidence. In Section 1.3, I introduce the theories that explain the use and effects of assessment and admission mechanisms. In Section 1.4 I present characteristics that the literature has identified to support admission systems. Finally, Section 1.5 provides a summary and draws some conclusions.

1.1 Admission and selection processes for upper secondary at an international level

The processes of admission to secondary and higher education have proven to be highly controversial in political and economic terms across the globe (Laursen 1993). Some of the reasons include the increase in the amount of students demanding education services, the lack of resources in education systems to satisfy the demand and the inefficiency that is deemed to result from spending public funds to teach students that do not have the abilities to make appropriate use of what is learned (Caillods, 2007). Notwithstanding these problems, it is widely regarded as politically unacceptable to restrict the access to education unless the

selection is seen to be fair (Laursen, 1993). Therefore, governments have implemented selection mechanisms geared at being transparent, efficient, and effective in selecting students for the limited places in post-basic education (Caillods, 2007).

The types of admission and selection mechanisms at post-basic education vary greatly from country to country. Based on the literature review we can identify at least 5 different types of admission and selection mechanisms. A first kind of admission mechanism is the one that aims to select the most able applicants based on formal written examinations; where the aim is to choose the students that show they have the will, aptitude and ability to complete the next education level (Davies et al. 2008; Laursen 1993; Valli and Johnson 2007). The examination based selection mechanisms make use of either exit examinations or entrance examinations¹ (Sayed et al. 2012) to choose applicants. Admission systems that rely on examinations to select applicants at UPS level are widely used in Europe, Asia and Africa.

A second kind of selection mechanism is the one that uses a “banding” technique to select students. In this type of admission mechanism, schools are expected to select a balanced intake of students with different academic abilities (West 2005). This admission mechanism is particularly represented in England and Wales² although its extensiveness varies.

Thirdly, some other education systems consider the distance from home to school as admission criteria. This mechanism is also known as intra-district open-enrolment policies (Söderströma and Uusital 2004). In this admission mechanism,

1 Exit examinations test the abilities of the leavers at an education level. In that sense all LS students will need to sit a high-stakes examination before graduation and the result will be used to determine progression. Entrance examinations on the other hand are sited by those who want to progress between education levels. These exams can be determined by government policy for the whole admission system or can be an instrument for certain schools to select applicants. Some schools that use entrance examinations might make use of interviews as well to identify those applicants with better abilities.

2 In these countries, secondary level school admissions are controlled by either the school at voluntary-aided schools or by the local education authority at voluntary-controlled schools. All schools have admission criteria to decide who will be allocated secondary education places. Some schools use a process of banding as a strategy to get an academic balanced intake. At these schools, an exam is used to label the student's ability as above average, average or below average. Schools would try to get a balanced students intake with different abilities to contribute to equality (West, 2005). It is important to highlight that not all UPS schools will use the banding admission mechanism. Some for example, may give priority to children who have a sibling at the school already, or who live close to the school, from a particular religion (for faith schools); others will give preference to those who do well in an entrance exam (for selective schools such as grammar schools or stage schools), or who went to a particular primary school (a 'feeder school'). The information on admission was obtained directly from the UK government's website available at: <https://www.gov.uk/schools-admissions/admissions-criteria>

the school options from which students can choose from are defined according to where they live (Söderströma and Uusital, 2004). This admission mechanism can mainly be found in the United States.³

Fourth, there are open admission mechanisms where students are not requested to sit any type of examination and it is up to each school to define the admission criteria. The selection would be based on availability, although additional selection criteria might be found (Wolff 2004). The open admission mechanism is also used in fee paying independent schools in the United Kingdom and widely represented in Latin American countries, where there is a weak dissemination and utilisation of assessment (Wolff 2004). In Latin American countries it is only in HE that universities have history of using entry examinations for selection purposes. However at UPS in particular, due to the lack of capacity and weak school infrastructure, some countries are introducing some kind of additional admission criteria, although it is still not universal (Perez Torres 2004).

Finally, another admission mechanism is one that is lottery based. This mechanism is the complete opposite to meritocratic mechanisms and allows schools to randomly select applicants (Hofstee 1990). There are two types of lottery-based mechanisms; the first one is used more in HE, where students are preselected according to whether they meet an admission criterion and then a lottery defines the selected applicants from that pool (a restricted lottery with a minimum prequalification). The second is more widely used at primary and secondary levels. This allows every applicant to have the same chance of being selected (this is also called a fair lottery) (Stone 2013). The lottery admission mechanism is being used to a certain extent in New Zealand⁴, England⁵ and the United States.⁶

3 In the United States, secondary level is divided into junior high school (starting at 11 or 12 years old), and high school (starting at 14 years old). Secondary level in the United States enrolls students from the local area, regardless of ability or vocational/college track (Rotberg, 2006). Even though there is no compulsory examination for the transition to UPS, the country has an important history of assessment where small samples of each school population are regularly assessed. The results have been used to value the effectiveness of the education system and as indicators of school quality, which schools use to compete for applicants (Le Metais, 2007).

4 Public primary and secondary schools in New Zealand are using this mechanism to randomly select applicants (Stone, 2008).

5 The mechanism has been used as well in England where at some councils the most popular schools will rely on a lottery to determine which students will be accepted (one example is the Brighton and Hove Council) (Stone, 2013).

6 In the United States, some districts like Columbia, Chicago and Baltimore are allowing students wishing to enroll in schools outside their neighbourhoods to get into the lottery mechanism to apply to schools outside their district (Stone, 2008).

In summary, there are different admission mechanisms that are being used around the globe to select or grant admission to secondary level education. The types of selection vary greatly; they are not standardised by region or by country. However a number of countries are using different assessments to select students at UPS level due to the pressures that increasing population growth is putting on the limited resources for education at this level and beyond. Although many countries do not have admission mechanisms based on examinations, evidence shows that there is movement towards these approaches in an attempt to make admission more meritocratic and competitive (Wolff, 2004, Caillods, 2007). Therefore the importance of assessment and examinations is increasing. In the following section the types of assessments being used are presented based on international evidence.

1.2 Assessment in the international context

Educational assessment can be defined as any procedure to measure the progress of a student in acquiring and mastering educational knowledge and skills (Wolf, 2007). Educational assessments are being used for certification, school completion and to determine access to the next level of education, commonly known as “gate-keeping” tests (Broadfoot 1996). Additionally, some countries are using examinations to rank or reward schools or teachers according to the performance of their students (Le Metais 2007 ; Wolf 2007). Furthermore, examinations are also used for formative assessment of learning to improve performance and identify and manage interventions (Sayed et al. 2012).

The use of assessment is expanding from being just a classroom tool to formal mechanisms designed not only to diagnose but also to inform educational interventions and practices. A wide range of developed and developing countries are participating in international examinations. Examples include the IEA's International Mathematics and Science Survey, the Programme for International Student Assessment (PISA) by the Organisation for Economic Co-operation and Development (OECD) and the Progress in Reading Literacy Survey (PIRLS) by the International Study Centre. These are all summative assessments of capabilities and not used for selection. The examinations seem to have the collective objective

of assessing students' abilities and skills, whilst their results, together with national assessments, are used to influence the curriculum and practice, though the degree to which they have done appears to vary (Le Metais 2007). Additionally some private organisations have developed exams that are used internationally such as the Scholastic Assessment Test (SAT) from The College Board. SATs are being used as selection mechanisms by providing measurements of literacy and writing skills (Buchmann et al. 2010). High school, secondary level and junior students generally take this exam.

Furthermore, some countries have developed their own internal assessment mechanisms to assess students at key points during compulsory education. In Mexico, assessment systems were introduced since the 1970s, although results were kept confidential to schools and the public. The first report on the state of teachers and students at primary and LS level was released in 1995 as a result of the agreement to modernise the education system. This was the first attempt to address education's public accountability and since then there has been further movement towards a culture of accountability and transparency. This has been promoted by the Federal government (FG) with the introduction of the Transparency and Access to Information Act in 2003. In the education sector the trend prevails and consequently new methods of assessment have been created. Perhaps the most important change towards a culture of educational assessment is the creation of national exams from the Instituto Nacional para la Evaluación Educativa (National Institute for the Education Evaluation, INEE), which runs the Quality and Education Attainment Exam (Examen para la Calidad y Logro Educativo, EXCALE) and the exam called Evaluación Nacional de Logro Académico en Centros Escolares (National Evaluation of the Schools Attainment, ENLACE) performed by the Federal Ministry of Education (Secretaría de Educación Pública, SEP). These examinations are becoming a key part of the education system and the results are used for evaluation but do not have high-stakes. Additionally, regarding the use of examination for selection, the national universities have well established assessment systems that are designed in-house and control access to the most prestigious universities. The use of examinations specifically at UPS level has been promoted by the Centro Nacional para la Evaluación de la Educación Superior (CENEVAL) a non-profit institution founded in 1994 by the Asociación Nacional de

Universidades e Instituciones de Educación Superior (National Association of Universities and Higher Education Institutions, ANUIES). Nevertheless, its use is not standardised.

So far I have introduced the mechanisms of admission and selection to control access to UPS schools based on international evidence as well as their means of examination and selection. It is important to look at the explanations behind their use. In the following section, I present the theories that explain the existence of the use of examinations as a mean of selection and what implications this has.

1.3 Theories behind assessment and admission mechanisms

Assessment is an explicit education evaluation, which is deliberately designed to measure educational performance and to provide information for purposes beyond immediate learning. Educational assessment is distinct from evaluation as it is the process of measurement, while evaluation is the interpretation of such measurements against particular norms of performance (Broadfoot 1996).

Educational assessment has been historically understood as a technology or as practice (Delandshere 2001). Assessment as technology, suggests the presence of tests to measure what individuals know. Educational assessment has evolved over the years towards finding new techniques of assessment where psychologists, educators, technicians or measurement experts have worked together to create numerous assessment technologies. The technology of assessment aims to make assessing learning outcomes more efficient, standardised, codified and ergo more objective.

As a practice, educational assessment is closely linked with the characteristics of particular societies. The example commonly used is early Chinese civil service examinations, which were extremely competitive. Examinations were used to select the most capable and moral individuals. In this context, honour was highly valued, so the selection of the best possible civil servants defined the type of assessment used (Delandshere, 2001). On the contrary, within medieval European universities, assessment was not needed for selection or qualification because that was inferred by social status. Instead, assessments were used for candidates to show publicly that they had mastered their field of study. In this context,

assessment was used merely for recognition. However, after the industrialisation movement, competitive examinations were introduced to rank students according to merit and to reward and honour learning. This was a result of the new social ideology, where family status and heritage began to be questioned as the basis for awarding important positions.

It can be stated therefore that assessments work together with social and economic changes, new conceptions of knowledge and system of values for education and schooling (Broadfoot et al. 1990; Delandshere 2001). Assessments, and their objectives, reflect the context where they are designed and the values that prevail in the society. Furthermore, educational assessments have evolved according to social and economic changes. Therefore, forms and procedures of assessments are moving from a class based to merit based selection (Tomaševski 2003).

Educational assessment has been important in the creation of educational systems, through the rationalisation of education provision and the control of educational practice (Broadfoot, 1996). Nowadays, educational systems are moving towards equitable provision but face massive restrictions due to limited resources available to provide high quality education. Consequently, admission mechanisms look to provide education access with equality of opportunities, while facing restrictions in the amount of resources. These conditions vary greatly from context to context and the admission mechanisms have to adjust to the context in which they exist (Harman 1994).

The examples of selection methods discussed above show how educational assessment and admission mechanisms are greatly interrelated. The theories that have been used to explain the operation and effects on admission and selection mechanisms relate mainly to the sociological issues of social selection and reproduction; the economic theory that relies on the efficiency and effectiveness of the selection and finally, the psychological approach that explains how the selection affect students' choices, outcomes and expectations. These three theories are introduced below.

1.3.1 Sociological theories on selection and admission mechanisms

Sociological theories stress the social selection that admission mechanisms produce (Floud et al. 1976) as well as the reproduction of the social structure (Bourdieu and Passeron 1979). These theories also stress how assessments play a crucial role in the regulation of social conflict and legitimisation of power (Broadfoot 1984). For example, selection mechanisms have been created to rationalise the educational provision of the education system (Eggleston 1984). In that sense, the way a society selects their students is a reflection of the distribution of power and the principles of its social order, while it is also a tool for the State to operate and control (Eggleston 1984).

Bourdieu has shown how school assessment processes appear to reproduce social values, as well as the forms of appreciation for the structures of economic and cultural capital. Although Bourdieu does not refer explicitly to educational admission or selection mechanisms, he reveals a system of values through which students and teachers are socialised and particular forms of economic and cultural capital are reproduced which account for educational decision-making (Bourdieu and Passeron 1979). Other authors, such as Mannheim and Durkheim, have analysed the role of education selection on the social order and on institutions. They argue that the way individuals are recruited, the rewards they receive and their status in the larger society is based on judgements made to insure social integration (Delandshere 2001). The judgements made take the form of scores; grades and awards based on assessment and are then regarded as signs of approval or disapproval, reward or penalty, acceptance or rejection for individuals. Therefore, assessment and admission systems are a reflection of such values and beliefs (Gipps and Murphy 1994).

Additionally, reproduction theories claim that the educational system reproduces the existing social class structure and demonstrate how social background can be more definitive in students' allocation than their aptitude (Laursen, 1993). Reproduction has been defined as a historic process of socialisation through education that refers to cultural and social reproduction. Cultural values are transmitted through lifestyle behaviours, while social reproduction is transmitted by social capital and through the socioeconomic characteristics of the family

(Bourdieu 1979; Bourdieu and Passeron 1979; Eggleston 1984). These theorists have shown that there is little social mobility achieved through educational achievement (in other words students' examinations performance). That suggests that selection has an important role in reproduction, which although is not definitive, is the legitimator of power and prestige that social classes already possess.

Additionally, Giddens (1986) suggests that the admission mechanisms are compounded by the actions of several agents in the system. Those actions are interdependent, as the actions of one agent are the conditions of the other. Therefore, both actions and conditions can be seen as enabling and constraining (Giddens, 1986 in Laursen, 1993). The admission mechanisms are enabling students as they offer options from which students can choose. Nevertheless, at the same time the system is constraining, as not every student can get admitted to their preferred school. The students and their choices are enabling to the system because the schools need students who are interested in applying and studying in the institution and without students, institutions get no funding or income. Conversely, students' choices are constrained by the system because normally their preferences are not in total harmony with the interests of the system and the system cannot control such choices (Laursen, 1993).

This approach recognises that students and admission mechanisms do not have equal influence within the system. Students make their choices in response to the conditions of the system and often have to reduce their aspirations and modify preferences according to the actual possibilities of admission. It is important to highlight that individual choices are influenced by social background in a multi-causal way. So students, even in positions of weakness when compared to the system can become knowing and strategic agents, while influenced by their social background and mediated through their preferences and reasons for applying.

1.3.2 Economic theories on selection and admission mechanisms

From an economic perspective, selection and admission mechanisms are used to ensure that the instructional capacity is aligned with the amount of students selected (Harman, 1994). Historically, selection and admission mechanisms have been required and used more at a higher education level where there is a greater

demand for places (Valli and Johnson 2007). In many developing and newly industrialised countries the pressure of creating more selective admission at post - basic education is increasing, as the number of applications are exceeding the number of student places available (Lubbers et al. 2008). Hence governments have been pushed to make difficult choices, which have generally been based on the economic grounds of efficiency and effectiveness.

The most important economic propositions are based on human capital theory and screening theory (Dore 1976). Human capital theory is based on the assumption that human capital is constructed by the stocks of knowledge and other characteristics a person has (innate or acquired) that contributes to their productivity (Pischke 2013). The human capital theory has many uses. In education admission is granted to students that have acquired human capital through their life that makes them able to reason (ability), solve problems, abstract and translate knowledge into practice (Dore, 1976). Therefore, education systems reward students that have the highest human capital (abilities, attitudes and skills) developed by schooling that can be measured.

Screening theory suggests that admission systems perform a deliberate process of "screening" to select the most capable. Admission is granted to students that perform better in selection exams or have better educational records. In other words, educational performance records are, or are treated as, "signals" of underlying ability (Dore, 1976). However, the most capable students are selected not just because their intrinsic "brightness", but because their educational records are seen as a reflection of a positive relationship between schooling and performance.

In that sense economic theory suggests that education selection may have two principles. The first one advocates for an efficient selection where education systems should enrol only the amount of students they can responsibly teach and those students that can benefit from the education provided (Harman, 1994). The second focuses on how, for selection to be effective, this may promote a certain composition of students selected according to objectives previously established in the education system or at school level (Anderson and Vervoorn 1985; Gipps and Murphy 1994; Ramsay 1984).

The economic perspective of efficiency in education selection focuses on how well the task of allocating applicants to scarce student places is performed (Harman 1994). Efficiency principles favour those who can get the most benefit from education and calls for a distribution that gives the greatest benefit to society. Moreover, efficiency is related to achieving the selection goals of education institutions regarding costs and characteristics of applicants to be selected. This argument is based on the fact that the demand for student places usually exceeds the places available. Hence, institutions have to ensure that the most suitable applicants gain admission and that the cost of the selection remains minimal for both the institution and society. This might also explain why education institutions typically use external examinations for selection. By doing so, the cost of designing an internal selection assessment is nil as the cost is paid by the student when applying to sit the examination with an external examination agency. The process can be seen as a “marketisation” of the admission; where private organisations are being responsible for education selection and governments are reducing the expenses and involvement in this matter.

A selection mechanism that has the goal of selecting the best applicants will be highly competitive. The aim will be to select the applicants that show the highest abilities or mastery of knowledge. The way to define at what level the best applicants can be measured varies but the use of examinations (and in some cases interviews) is assessing a particular characteristic.⁷ The common characteristic of students selected under this goal therefore will only be their capability as they are unlikely to be a socially homogeneous population. In this sense, in economic terms an admission mechanism would be efficient if it manages to give a place in education to the very best applicants.

Conversely, the economic concept of effectiveness of selection mechanisms is related to whether the admission process achieves the goal that the education system has set up. The goals set by each admission mechanism may vary but critics have suggested that goals of admission mechanisms in most cases are not clearly articulated (Harman, 1994). The effectiveness goals, however, can be grouped as

⁷ In some cases when the objective comes at a high cost but is valued, institutions may even offer financial support to those students who meet the admission criteria but would not be able to pay the cost of education.

follows: those that focus on expected completion, and those that relate to diversification, fairness and equality

An admission mechanism can have the goal of minimising the risk of drop out or, in other words, maximising the completion rate (Valli and Johnson, 2007). This kind of mechanism may focus on selecting only the most motivated students who have higher chances of completing. For that purpose, schools might consider past education history, grades or motivation, as well as assessments. Another way of looking to maximise chances of completion is to select only those applicants who can realistically pay the cost of education. In this sense, the selection mechanism will be effective only if it can target students with the economic resources to complete their education in certain institutions.⁸ Therefore this type of selection would be effective if, at the end of the education level, the majority of students complete and are able to graduate. This means that the selection mechanism managed to identify the students with the highest probability of completion, which in economic terms is highly effective as there is no waste of resources.

With the goal of diversification, the education system will have the objective of selecting students that come from different backgrounds. The diversification goal within admission might be based on liberal democratic views suggesting that education should be available to all who are qualified (by ability and attainment) and wish to enrol. In this case, selection will be effective only if it is choosing applicants that represent all socioeconomic groups (including minorities, vulnerable groups and so on). Ideally, this selection mechanism should be accompanied by greater diversification in selection criteria and methods in order to be accessible for everyone. The economic effectiveness of the diversification goal can depend on whether its foundations are related to either equality or equity.⁹

⁸ This type of admission mechanism is most commonly used at private institutions. In this case, the institutions' intake can be expected to comprise those who are balanced in abilities, where people with high abilities have the same chance of being selected as someone with not such high abilities. The common characteristics students may share are perhaps social status or economic solvency.

⁹ The theories behind the terms equality and equity are very important in economic terms. For this piece of research the concepts are just going to be defined instead of entering into the vast debate and subsequent problematisation. The concept of equality used comes from Amartya Sen (1992) where equality is seen as equal treatment of individuals of all social classes without distinction. It is important to note that the definition of equality faces two types of diversities, on one hand the diversity of human beings and on the other the multiple variables from which you can judge (Sen, 1992). Valuing equality is constrained to human diversity: age, gender, general skills, special talents, susceptibility to disease, etc., and is judged by comparing the income, wealth, happiness, opportunities, capacities, rights, education, etc., as spaces most commonly know as the equality of 'what'. There is wide debate on the adequacy of equality in the distribution of goods from different approaches. (Sen, 1992).

The terms equality and equity do not have the same meaning. The term equality is related to the theoretical statement that individuals should be treated similarly, regardless of any artificial barrier, prejudice or preference. Hence, the chance for development or access to goods should be open to everybody who is interested with secured equal chances to compete. In equality terms, an admission mechanism should have the procedure and method for applicants to be selected based on their own effort and abilities, despite any additional circumstance. This approach is well known as equality of opportunities.¹⁰ Equity¹¹ on the other hand encompasses concepts of justice and fairness, equal opportunity and equivalent treatment. Equity suggests the principle that education has to include all those who unfairly were denied equal opportunities and hence require special or unequal treatment (Campos 2006). An educational system with equity as goal might need to have the task of identifying populations or disadvantaged groups and ensure that the socioeconomic characteristics of those students are not obstacles for access. Equity therefore guides the education admission mechanism to define, through judgments of value, the minimum and desirable admission criteria to make admission inclusive and accessible for even marginalised groups (Bracho et al. 2004; Campos 2006; Stone 2013).

¹⁰ Among the supporters of equality can be found the utilitarian approach that strives to treat human beings equally in terms of their profit or loss of utilities, giving equal weight to the interests of all parties and always giving equal weighting to the interests of individuals (Harsanyi, 1982; cited Sen, 1992). Rawls's approach explains the need for the equal distribution of basic goods to achieve equal liberty and justice. Other authors advocate equal treatment in the provision of resources (Dorbin, 1981), equal rights (Nozick, 1974) and equal legal and political treatment to achieve a fairer society (Buchanan, 1986). For Sen (1992) equality is a substantive freedom to achieve what the subject appreciates, in particular the capacity to achieve the goals valued by society and individuals. Thus, the arguments for equality are based on the need to achieve equality in the freedom, opportunities and capabilities of individuals. Approaches against equality claim that, given the heterogeneity of human beings, it is conceivable that they should not be treated equally. This approach suggests that a larger proportion of goods should be received by those in need or by those who most deserve it (merit-based distribution) (Lucas 1980, Letwin 1983, Goodin 1987 in Sen 1992). This last argument underpins the need for equity. To establish justice it is not appropriate to treat human diversity as if their circumstances were the same, since the different contexts in which they live and subsist influence their behaviour and the way they may benefit from different goods may vary. Given the heterogeneity in human beings and their needs and abilities, the differential treatment approach defended by equity is supported. Also, the equity approach is justified based on the criterion of justice due to the existence of basic needs or instrumental (primary goods necessary for his character) that any rational person wants and must have, i.e. these important needs must be satisfied especially for those most disadvantaged, as a criterion of justice as fairness.

¹¹ Equity also has to do with difference, so that social and economic inequalities are fair when they benefit the least advantaged in the social structure and are given in free competition and via non-discriminatory social positions (Rawls, 2000). In this sense, educational compensatory programs are justified to the extent that they identify groups, schools or individuals who are marginalised. Rawls discusses the differences between justice and fairness. To define the principles of justice as fairness Rawls uses a hypothetical example where the initial situation or original position has the characteristic of having the veil of ignorance where nobody knows their place in society e.g. their class position, status, benefits, natural abilities, intelligence or strength. In this position, people are self-interested and rational therefore by not knowing their position everyone appeals for a situation where all primary good are distributed fairly and equality.

The term equity from the axiological perspective is regarded as a virtue of not benefiting one individual or group by harming the rest. Equity in this sense is a broader concept than equality as it includes a moral or ethical value for education to be distributed for the benefit of the most disadvantaged sectors. Equity acknowledges inequality and diversity in education and seeks to establish justice (Campos, 2006). Despite their differences, both concepts of equity and equality interact within the understanding of how an admission mechanism would look like if it aims for diversification. The main principles to be considered for diversification based on equity and equality are merit and fair trade (Bracho and Zamudio 1995).

Merit is a useful criterion in the distribution of goods and bases access on the possession of certain attributes. In an admission mechanism, access will be granted by deciding how, and the extent to which, an attribute is satisfactory. Most admission mechanisms use merit as a criteria to select students who demonstrate more ability through standardised examinations. This type of admission will identify students that possess more “merit”. These students would need to demonstrate ability; evidence that if given equal opportunity, they will achieve the most and will thereby go on to make the most of education (Stone, 2013). In this sense admission is aiming for equal opportunities of access but rewarding individual merit. In this regard, an equity approach will argue that external conditions can mark the differences in students’ scores so the admission mechanism has to find an examination that is not biased against any social group (Gipps and Murphy, 1994).

An example of applied equity theory into admission is the lottery admission. This theory holds that a fair lottery is an appropriate tiebreaker between applicants with equally strong claims to admission (Stone, 2013). In order to diminish how contentious selection can be where scarce places are available, the selection should identify all applicants that meet minimum admission criteria (i.e., previous education level certificate) and then perform a lottery. Merit in this case is based only on the attribution that applicants should have a qualification to enter into the lottery, but that merit will give everyone the same chance of getting selected as in the hypothetical original position that Rawls (2000) defends (Rawls 1999).

The fair trade distribution principle can be considered to be the other foundation guiding admission. Even though fair trade does not produce equal access, it appeals for the freedom of each participant to express his or her legitimate desire to participate. In this sense, each applicant should have equal opportunities to choose where to apply to school. The equity supporters will then argue that the mechanism will need to compensate students differently according to their particular characteristics in order to compete fairly. Consequently, the system will seek to establish justice, not by treating each applicant as if their circumstances were the same, since the different contexts in which they live and subsist influence their behaviour, abilities and outcomes.

1.3.3 Psychological theories on selection and admission mechanisms

Psychological theories seek to understand how admission mechanisms relate to students' individual characteristics (i.e., intelligence or grades) and their performance in the selection process (Sharp 1984). Additionally, other psychological approaches aim to explain how the use of admission and selection mechanisms affects students' self-esteem, motivations, aspirations and expectations.

For early psychological theorists, selection takes place along a normal distribution of intelligence. This view takes the assumption that intelligence distribution operates as a "genetic meritocracy" (Sharp 1984). Therefore according to this view, performance in entry examinations and the opportunity for admission is defined by the biological variability of students' knowledge and intelligence. In which case the main concern regarding selection is the validity of the instruments used in admission mechanisms, or in other words, which assessment measures better and ergo selects better.

The reliability of the instruments used by the admission mechanisms is of great importance for this theory; for example whether the instruments used for selection produce the same outcome when the assessment is used a second time. Consequently, their interest is in the educational philosophies, psychometric techniques and objectives underlying the assessment (Gipps 1994). Psychological theories in particular have been widely criticised as they assume an incomplete view of the individual as an actor, neglecting the fact that their performance,

aptitudes and choices are made within an educational system and constrained by their context (Broadfoot, 1984).

Other sets of psychological approaches focus on how the selection mechanisms affect students' self-perceptions, motivations and expectations. Here, there is vast literature on how entry examinations may have undesirable effects on students, such as producing lower levels of intrinsic motivation and increasing anxiety (i.e. Gipps, 1994, Anderman and Anderman, 1999, Wigfield et al., 2008 and Putwain, 2011). Research has also shown that students who have poor examination experiences are more likely to disengage at school. Disengaged students tend to believe that it will not be possible for them to pursue high educational goals and therefore tend to keep their expectations low (Boxer et al. 2011). Low expectations are associated with lower levels of achievement, which may have longer-term impacts on educational and vocational attainment (Bandura et al. 1996; Bandura et al. 2001). On the contrary students that have positive experiences with examinations tend to engage more at school and increase their expectations. Evidence has shown also that students with high expectations may improve their academic self-efficacy and are more likely to take strides to achieve their educational goals (Bandura et al. 1996; Boxer et al. 2011). Therefore, the effect of selection mechanisms on expectations may be long-term and influence future educational and life trajectories .

In summary, in this section I introduced briefly the theories that explain the use and effects of examinations as admission mechanisms. As mentioned before, these theories will be discussed more in depth in the following chapter. Nevertheless in the following section I present how the theories have interrelated concepts in what the literature has described as the desirable characteristics that selection and admission mechanisms should have.

1.4 Characteristics of admission mechanisms

The desirable characteristics of the admission and selection mechanisms identified in the literature are: transparency, equality of access opportunities, as well as predicted validity and accountability (West 2005; West et al. 1998). Those

characteristics can be seen as a result of the set of values that previous the sociological economic and psychological theories support.

Admission mechanisms have to be transparent so that the applicant population should be able to know exactly the procedures to follow and that these should be fair, predictable and objective. This characteristic is based on the principle of equal opportunities. If the requirements are obscure and not everyone is able to understand the procedures, some students may be left behind or placed at a disadvantage. Transparency in this sense does not only mean that information should be available to everyone, but also that these requirements should be effectively communicated, as everyone would be measured on the same criteria.

In political terms transparent admission and selection mechanisms are desirable because their use suggests a political and social will to make the process open and fair for the participants. Transparency in that sense may suggest that the system is attempting to recognise and account for unequal power relationships to create a context where the “enabling” and “constraining” opportunities are more equally distributed. There would be the underlying assumption that effort and achievement is rewarded independent of social status. Admission mechanisms are also intended to offer equal access opportunities. This means that the selection cannot be made on factors such as socioeconomic grounds (Lubbers et al. 2008; Stone 2008). Additionally, it has been suggested that admission mechanisms have to give applicants the opportunity to choose the preferred school for whatever reason they have: because of the distance to home, a particular social or religious connection, for safety or adequacy to individuals’ characteristics (such as disability) or because of the cost (West et al. 1998). In that sense, their chances to be selected at their preferred option may not relate to their socioeconomic background.

Moreover admission mechanisms should aim to be predictable. That means that applicants should be able to assess the probability of their application to be successful. When requirements, criteria and means of selection are made clear, each applicant would be able to predict their chances of being granted a place in the next level education. Applicants would subsequently assess whether they are ready or prepared to compete and adjust their expectations. When admission

mechanisms have minimum selection criteria such as certification, applicants know that their application will be rejected if they fail to provide the documents requested. In contexts where entry examinations are used, the admission process should explicitly state the scores required for each institution or program (Bakker and Wolf 2001). In such cases, students should be able to assess if they are ready to sit an examination and the chances they realistically have, to obtain a place.

Accountability in admission suggests that the mechanism has to be monitored (West et al. 1998). This characteristic suggests that admission mechanisms should have some kind of external monitoring to make sure that they are operating efficiently, effectively and that they are promoting the values that are recognised by the system. If the admission mechanism uses examination as a mean of selection, the education system has to be accountable for the examination's (validity) and their outcome (students being able to access their results). For an admission mechanism to be accountable, it requires that the criteria for selection are objective, and carried out (or monitored) by an institution that guarantees democratic accountability. Such characteristics will ideally mean that selection is judged on an academic basis instead of being a form of social selection. Therefore educational admissions should be carried out in such a way that the procedure can be monitored or audited.

Additionally, it is important to highlight that the admission mechanisms will operate better if the criteria and timetable is similar within each country. In this way every applicant has the same opportunity to apply, as the admission requirements are fully known and understood. The admission requirements should be widely advertised so every applicant has the same information regarding the admission process and ergo equal opportunity to participate if desired.

1.5 Final remarks

This chapter explored the theoretical background of admission mechanisms and assessment. A review of the admission mechanisms being used around the world is used to identify characteristics and construct a classification of the kind of admission mechanisms used for the transition to UPS in Mexico. This analysis is presented in Chapter 5.

I presented the theories that explain the use and effects of admission and selection mechanisms. The theories come from sociological, economic and psychological frameworks. The sociological perspective views the use of admission and selection mechanisms being as a result of power relationships and of the imposition of dominant social values. This suggests that the most important effect is that such mechanisms reproduce the existing social structure, which promotes inequality. Conversely, the economic theoretical background is represented by the human capital and screening theory, where admission and selection mechanisms are used to define and choose the characteristics of the selected students' population. In particular, admission and selection mechanisms define who would be selected in terms of ability, skills or achievement (efficiency) or what socioeconomic composition would be represented (effectiveness). Finally, the psychological framework is concerned with the attribution of success or failure and its consequences. These theories explain that admission and selection mechanisms may affect students' personal perceptions.

My research design embraces these three theoretical approaches and uses them to guide the analysis. Using the sociological approach it is expected that the social and political context will affect the admission and selection mechanisms used in Mexico. Additionally, the economic approach suggests that admission and selection mechanisms would determine the effectiveness and efficiency of the selection. In that sense, admission mechanisms may fulfil the selection objectives set up by the education system and ensure that the most able students are selected. Consequently, the working definitions of effectiveness and efficiency are as follows. An effective selection to UPS in Mexico would offer equitable access because the education system has equality as main objective, hence, the UPS selection is effective when the socioeconomic composition of UPS students selected has equal representation of students from every socioeconomic background. Conversely, an efficient admission or selection mechanism chooses students that are better prepared to maximise the benefits of education, hence the UPS students selected would show high level of ability or achievement. It is important to mention that in this thesis I use achievement (measured by reading scores) to observe the efficiency of the selection. This analysis is presented in Chapter 6.

Furthermore, from the psychological perspective I presented how selection and admission mechanisms may affect students' self-perceptions, motivations and expectations. The literature has highlighted how admission mechanisms have long-term effects on educational expectations and may shape future attainment and employment opportunities. Therefore, in this thesis I investigate how the admission and selection mechanisms used during the transition to UPS may affect students' educational expectations. This analysis is presented in Chapter 7.

The three theoretical approaches are further discussed in the following chapter.

Chapter 2. The transition to upper secondary: admission and selection mechanisms under sociological, economic and psychological lenses.

The previous chapter described the use of entry examinations for the admission to post-compulsory level and introduced the sociological, economic and psychological foundations of their use. In this chapter I present a more detailed review of the literature in the matter. Here, I review the effects of the transition process and their means of selection on: 1) the selection of students according to their social background; 2) the selection of students according to their ability or achievement; and finally 3) students' educational expectations.

The chapter is structured in four sections. Section 2.1 addresses the relationship between educational transitions and admission/selection mechanisms. Section 2.2 focuses on how education transitions and their means of admission affect the selection of students based on students' social background (effectiveness) and ability or achievement (efficiency). Section 2.3 focuses on the impact of education transition and its means of selection on students' educational expectations. Finally, Section 2.4 highlights the most important findings.

2.1 Education transition and the role of admission and selection mechanisms

Education systems are structured by a series of grades and levels through which students' progress. There is progression within and between education levels. The latter is called transition as it involves a change in education environments (Müller and Karle 1993). Consequently, students experience a transition every time they complete an education level and are willing to move forward to the next one.

These transitions would be different not only according to the education level but also by the type of institution where the transition takes place (Dias and Sá 2012; Sirsch 2003). In this thesis I focus on the transition between LS and UPS. However, to my knowledge, there is much more written on the transition to HE rather than to UPS level (or equivalent). Therefore, the literature reviewed in this section not only focuses on educational transitions to secondary level, but on transition to HE. I consider that including this information is relevant as in many contexts the

selection and admission mechanisms from HE are being used at UPS level in response to the increased demand.

2.1.1 The use of admission and selection mechanisms in education transitions

In the transition to post-compulsory education, entry examinations are increasingly having an important role (Davey et al. 2007). At public and private schools, regardless of their different funding structures, examinations are often becoming key selection criteria. Nevertheless, in most countries the use of examinations tends to be neither unified nor extensive (Little and Wolf 1996).

To my knowledge there are not many studies on the differences between transition systems at an international level. Perhaps the only study is Bakker and Wolf (2001), who studied transition systems at secondary-level and classified them by their use of entry examinations as either heterogeneous or homogeneous transition systems. Heterogeneous transition systems are those where entry examinations are used at some schools but not in others (Bakker and Wolf 2001). Generally schools with higher prestige would require entry examinations; while in schools with no examination, applicants would need to prove achievement (measured by grades). Therefore, heterogeneous systems are characterised by well-recognised gradations of prestige or quality between schools. This means that there is competition for school places and the competition is greater at the 'best' secondary institutions.¹²

Conversely, within homogeneous transition systems¹³, schools operate on the basis of clear universal requirements and students' grades are the main selection criteria. One particular characteristics of this kind of system is that students tend to enrol close to home, as there appears to be no clear hierarchies between schools (Bakker and Wolf, 2001). Consequently, heterogeneous transition systems tend to be more competitive than homogeneous systems because in the former students' performance defines selection, regardless of whether schools use examinations or not (Bakker and Wolf, 2001).

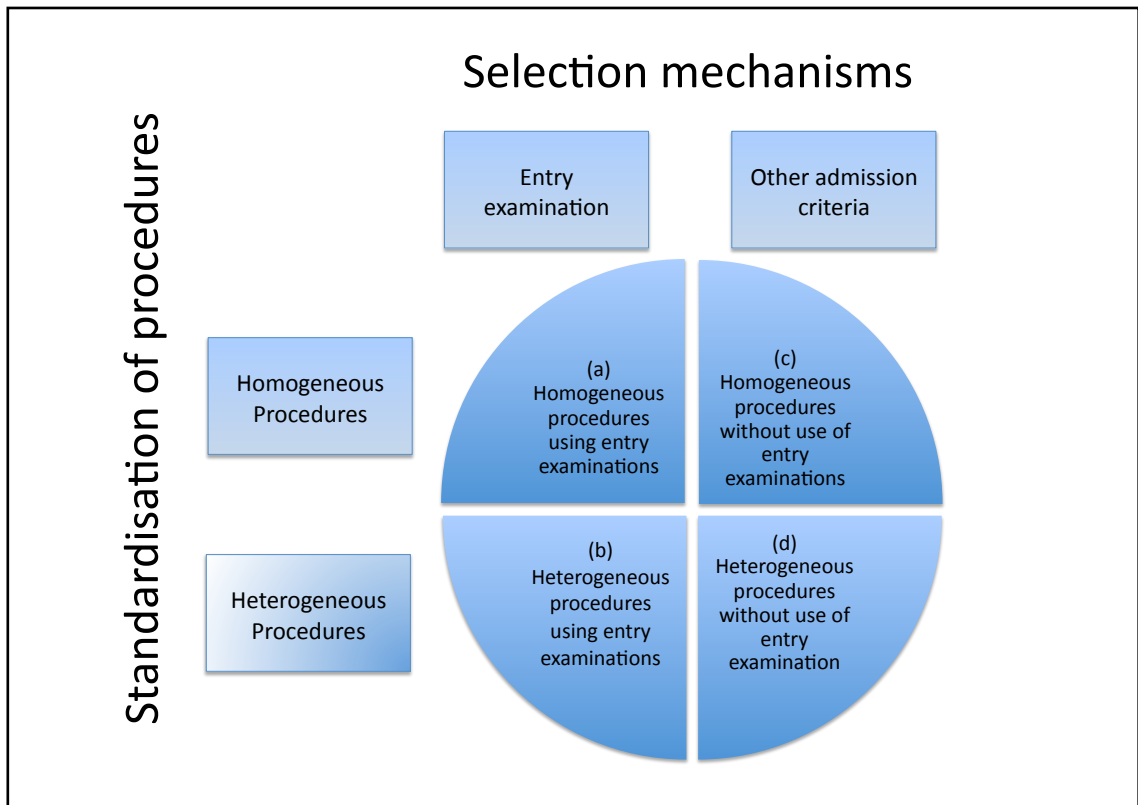
¹² The examples that Bakker and Wolf (2001) use for heterogeneous transition systems are the American, and to a lesser degree, the Israeli transition systems to secondary education.

¹³ Citing as examples the Italian and Dutch transition systems to secondary education

However, some studies have shown how systems that use admission procedures other than examinations also show variations within countries. For example, banding admission in England and Wales is not used at all schools (West 2005), neither is the intra-district open admission system universal in the United States (Rotberg 2006) nor the open admission systems in Latin America (Perez Torres 2004; Stone 2013). Therefore, it is possible to infer that the heterogeneity or homogeneity of transition systems is not only defined in terms of its use of examinations but by the extensiveness of the procedures for admission and selection.

Based on the literature presented we can infer that the study of transition systems may need to observe how heterogeneous or homogeneous such procedures are, as well as their use of examinations as mechanisms of selection. In Figure 2.1 I propose a framework that summarises the factors to consider when approaching the study of transition systems. This framework will be used to observe the characteristics of the transition to UPS level in Mexico both at a national and State level. The proposed framework suggests that to study transition systems there are two qualities that must be considered: first whether the procedures are standardised at school level or in other words whether the transition procedures are homogenous, and second the means of selection.

Figure 2.1 shows the possible combinations of transition systems based on the standardisation of procedures and the mechanisms of selection: (a) transition systems that have entry examinations but where the procedures are homogeneous, (b) systems where entry examinations are employed but where procedures are heterogeneous, (c) systems that have selection mechanisms other than examination where the procedures are homogeneous and (d) systems that have admission criteria other than examinations but that have heterogeneous procedures.

Figure 2.1 Framework to study transition systems

Source: Own elaboration based on the characterisation of Bakker and Wolf, 2001

Studies show that the mechanism of selection affects students' chances to progress to the next level, as well as future graduation and enrolment in further education (Stone 2013; West et al. 1998). In the following section I present a review of the literature on how education transitions affect the selection of students at post-compulsory level, emphasising the socioeconomic background of the students selected, as well as, their achievement under different modes of transition and selection.

2.2 Education transition and the selection of students

Transition policies play a central role in students' opportunities to progress (West et al. 2008). The question is whether a system that uses assessment will result in better transitions due to academic attainment, motivation and merit or whether it will perpetuate attainment based on family background (Schiller and Muller 2000). In other words, can education transitions and their selection mechanisms operate effectively and efficiently?

This section focuses on the relationship between education transitions and their mechanisms of admission and selection. In particular I review literature that studies the effect that transition processes have upon who is selected. This subsection is divided in two: Section 2.2.1 focuses on effectiveness and Section 2.2.2 on the efficiency of the selection.

2.2.1 The effectiveness in the selection during educational transitions

Lewin (2007) argues that the gaps in educational enrolment between social groups are stronger after the transition from one education level to another. This becomes particularly noted in the transition between compulsory to post-compulsory education (Müller and Karle 1993). This pattern has been confirmed in multiple contexts including the transition to secondary level in Europe, among minority groups in the United States (Apple 1993.; Callahan et al. 2010; Darling-Hammond 1994; Finn 2012; Jencks and Phillips 1998; Perna 2000), Latin America (OECD 2006; Reimers 2000), some Sub-Saharan African countries (Shabaya and Konadu-Agyemang 2004) and some Asian countries (UNESCO 2010; Vlaardingerbroek and El-Masri 2008).

There is a certain level of agreement that educational transitions of individuals are affected by the differences in their social background. Inequalities of conditions produce inequality of opportunity, which can subsequently influence future educational attainment. It also appears that the effect of social background is stronger in the transitions from one education level to the other (Lowe and Cook 2003). Hence, several studies have found a strong relationship between social background and education transition experiences: high-socioeconomic status children are still more likely to enrol in higher levels of secondary education than their lower socioeconomic status counterparts (e.g. Dronkers 1983; Kloosterman et. al 2009).

Nevertheless, the explanation of why those relations exist varies. Boudon (1974) suggests that the differences that emerge are due to primary and secondary effects of social background. The 'primary effects' of social background include all the influences of social background, whether cultural, financial, or psychological that affects individuals' performance and shape students' chances to progress, especially when entry examinations are used (Goldthorpe 1996). An example of

‘primary effect’ is the difference in academic performance of wealthy and poor students, where students from lower socioeconomic backgrounds are at a disadvantage. The ‘secondary effects’ relate to the choices students make during their academic lives that are specifically related to their social background. For example high socioeconomic status children tend to opt for higher education levels than low socioeconomic status children (Kloosterman et al. 2009). Therefore wealthy students may complete more educational transitions than poor students.

The study of the relationship between social background and education transitions has abundant literature (e.g. Kloosterman et al., 2000). This provides evidence to show that students from wealthier backgrounds have better social and cultural resources, which translates into better academic performance (Goldthorpe, 1996). Those resources, as linguistic and cultural skills, are advantageous in competitive selection processes. Additionally, wealthier students benefit from the educational success of their parents and the choices they make for them. The choices that emerge from social status positively affect students’ expected benefits from education and transition completion (Breen and Goldthorpe 1997; Breen et al. 2005). Additionally, high socioeconomic status families that have more financial means at their disposal, benefit from more education and are more likely to encourage their children to progress into post-compulsory and HE, and to be able to afford to send them (Breen et al., 2005, Kloosterman et al., 2009). As a result, the offspring of high socioeconomic status families are likely to complete more transitions.

Other kind of literature have studied the relationship of socioeconomic background and educational transitions using the conceptual framework of Pierre Bourdieu (Gonzalez et al. 2003; Perna 2000). Bourdieu (1977, 1990, 1994) defined cultural capital and habitus to explain the ways in which societal structures and opportunities interact with students’ aspirations and choices to produce particular outcomes. In that sense, the transition processes and their admission mechanisms have been observed as societal structures which produce the outcome of selection and admission at particular education levels. With this respect, each social class possesses social and cultural capital that parents pass to children as attitudes, preferences and economic capital (Walpole et al., 2005). For that reason, within

educational transitions the behaviour and preferences of students that come from different social backgrounds differ in dealing with the procedures of application and admission (McDonough, 1997 cited in Walpole et al., 2005). In that sense, the knowledge regarding the transition process and its procedures and mechanisms, is a type of cultural capital that students may possess by virtue of their socioeconomic background (Walpole et al. 2005). The lack of transition process knowledge (cultural capital) in highly competitive admission processes puts students from poorer backgrounds at a disadvantage as their habitus may lead them to use poor transition strategies.

Moreover, studies have suggested that during the transition to postsecondary education, there are many choices and procedures to follow that require specific knowledge and skills. Acquiring accurate information and resources becomes a necessary tool for indexing and selecting possible options, such as choosing the right school, negotiating the application procedures and preparing for an entry examination. Schneider and Stevenson (2000) suggest that when students have relevant social capital at home that provides a “bridge of information and resources” useful when applying and doing post-compulsory transitions. In addition, social capital¹⁴ fosters students’ ambitions, which supports the transition process (Doo Hwan and Schneider 2005).

Other factors associated with education transition and students’ background is the type of school attended. Poor students attend resource poor schools. Those schools have found to have negative effect on students’ test scores at entry and exit examination (Walpole et al., 2005). Evidence has shown that poorer students that attend poor schools tend to score considerably less than their wealthier peers that attend better schools (OECD 2009a). Consequently, in transition processes where the admission is conditional to entry examinations, students from poorer socioeconomic backgrounds tend to have fewer chances to be selected or to get

¹⁴ Also, families that have a member who has already attended university will encourage students to apply at the most suitable type of school to maximise the chances of later success at university applications. If students get this kind of orientation they may create an appropriate strategy to succeed not only in the transition to UPS but to future transitions as well. Therefore poor cultural capital may lead to poor transitions. Moreover, family background measured by father's education has also been found to have a very strong association, not only with university aspirations, but also with the type of secondary school attended (Doo Hwan and Schneider, 2005). This suggests that families can be a means to support students in the transition process to tertiary education by means of their cultural capital.

accepted at the school of preference because of their low scores (Nichols et al. 2010; Stewart et al. 2007).

Regarding the scores of low-income students in entry and exit examinations used for educational transitions, several studies have pointed out structural and cultural biases that the design of exams may have.¹⁵ This phenomenon has been studied in relation to the case of UPS and college entry examinations in Mexico. Studies have suggested that students that come from very marginalised backgrounds do not possess the kind of vocabulary used in entry examinations and that this works as an additional filter in their selection (Bracho, 1991, Perez Torres, 2004). This particularly works against students that come from indigenous communities whose Spanish is likely to be poorer.

Moreover, poorer students tend to be taught by less qualified teachers and study in institutions with a lack of knowledge and support for transition processes. This may hinder poorer students' chances to complete successful transitions because information may be distributed late, or be minimal (McDonough, 1997 cited in Walpole et al., 2005). Qualitative studies have found out that students tend to rely on the information provided by schools and school officials on transition procedures, admission and examinations required. Therefore if those channels do not work or do not exist at schools, students from poorer backgrounds may lose the only source of support they might have found to complete a successful transition (Walpole et al., 2005).

Additionally, some studies have investigated the effect of the "gender gap" and socioeconomic status on students' transitions. It has been suggested that gender differences in education transitions are mediated by students' context and social background. In developing countries the gender gap in educational transitions at post-compulsory education has progressively diminished (OECD 2009a). The factors that affect transitions to post-compulsory education in the Global South vary according to the region. In Latin America and the Caribbean, more girls than boys are attending secondary school (OECD 2009a). However, access to post-

¹⁵ Studies on entry examinations used at college admissions in the United States have shown that often test questions require upper- middle-class cultural knowledge and understanding (Gipps & Murphy, 1994) This works against minority non-white groups such as Latinos and African Americans who do not have the required cultural background to understand the examinations and ergo score considerably lower than their White counterparts (Walpole et al., 2005).

secondary education is influenced firstly because of the degree of asymmetrical power relations between urban and rural areas; secondly because transitions are mediated by differences between indigenous peoples and mestizo subcultures, and lastly because of gender differences (Stromquist 2001). Therefore, studies have shown that in Latin America, countries with large ethnic and rural populations, and thus with substantial poverty, have greater barriers in the transition to post-compulsory education. These countries include Mexico (Gonzalez and Villaescusa 1998), Peru¹⁶, and Guatemala and Ecuador (Stromquist 2001).

2.2.2 The efficiency of the selection during educational transitions

The efficiency of the selection mechanisms can be defined as when students with higher abilities have higher chances to be selected or when the criteria used during the educational transition selects students with the highest achievement levels (Harman 1994). The concept of ability is broad and may have different meanings. Ability can be defined as capacity, capability, talent, aptitude or skill (Oxford University Press. 2007) and can be seen to emerge either through nature or nurture. As a consequence, students' ability is a characteristic difficult to measure. However, most examinations test students by focusing on measuring skills, for example, by assessing the extent to which students can apply knowledge to real-life situations (OECD 2009a) or by testing knowledge against a set curriculum (Instituto Nacional para la Evaluación de la Educación 2008).

For selection matters the most common examinations are either knowledge-based or aptitude/skills tests (Konečný et al. 2012). Konečný and colleagues (2012) showed that aptitude tests may lead to higher chances of admission for students with higher ability than knowledge based tests. The explanation is that students' performances at knowledge based tests are affected more by students' educational history. In that way students from poorer backgrounds would be at a disadvantage, as their knowledge will be intimately related to their circumstances, which may be limited in comparison to their wealthier peers (Konečný et al., 2012).

It is important to highlight that regardless of the type of entry examination, whether knowledge-based or aptitude tests, students would obtain a result or

16 PROMUDEH (2000) Plan Nacional de Igualdad de Oportunidades entre Mujeres y Hombres 2000–2005 (Lima, Ministerio de Promoción de la Mujer y del Desarrollo Humano) [Ministry for the Promotion of Women and Human Development]

score that is used to qualify students' skills or achievement compared to others. As in educational transitions at post-compulsory level, the use of entry examinations has gained greater importance, whereby test scores define the selection of students. In that sense, test scores are a medium of exchange whereby students earn access or education credentials and schools gain accreditation (Airasian 1987).

Research has also focused on observing the differences between systems that use entry examinations extensively and those where no entry examinations are used. This literature is therefore focused on observing their comparative advantages or disadvantages as mechanisms of admission or selection. Schiller and Muller (2000) suggest that extensive use of entry examinations may contribute to making students graduate and complete the process of the transition better than in contexts where examinations are not used extensively. Schiller and Muller (2000) suggest that the more extensive an assessment is, the more effective the system becomes in identifying the most able students and, thus students' chances to complete educational transition as well as to graduate increase. The argument has been supported by other studies that have concluded that entry examinations are associated with higher probability of students graduating from high school and completing further transitions (Bollinger 2002; Buchmann et al. 2008). Hence, testing at the beginning of an education level significantly contributes to identifying those students that have better chances to successfully learn and stay in education until they graduate (Muller 1998). However, to support the predicted validity of examinations, none of these studies have dealt with the counterfactual argument of whether those students who are not selected would have done worse.

Supporters of the use of entry examinations also suggest that examinations can incentivise students to master the curricula while aiming to reach the score needed to be granted access to education. With that regard, it has been found that in contexts where entry examinations are implemented, the examination gives students the opportunity to progress regardless of previous achievement. This argument suggests that, if designed properly, entry examinations can help institutions to select students based on academic potential and abilities, which aligns with equality of educational opportunities (Heubert and Hauser 1999).

Nevertheless, the opponents of the extensive use of entry examinations have highlighted some limitations. One is that when entry examinations are used extensively, students have to invest in exam preparation. The need and use of out-of-school support for examination preparation examinations has become almost universal and widely known in education literature as 'shadow' education. Shadow education exists in developed as well as in developing countries. Shadow education has been analysed as an additional tool for social selectivity during educational transitions (Buchmann et al. 2010). Research highlights that students that can afford private tuition will have greater chances to perform well at the transition process than the rest of their peers (Grima and Ventura 2006). Studies have also shown that even when entry examinations fees are kept low, students from low-income families could not afford to get extra support to prepare for exams and are therefore left at a disadvantage in the transition process (Grima and Ventura, 2006).

Another disadvantage is that the extensive use of examinations does not always translate into ability improvement or increased capacity of achievement. In this regard, studies have highlighted that students may focus too much on developing skills to respond to the types of questions that the exams will assess. As a result, students may progressively improve their timing (in responding to questions) but there is no learning process and no actual ability developed (Buchmann et al. 2010). This has been defined in the literature as "the high-scores-low-skills phenomenon" (Liu and Neilson 2011). When transitions are based on test scores to grant admission, the system promotes students developing either of the following types of effort: real learning or exam preparation. Liu and Nelson (2010) show that students that focus on the learning process may develop higher skills while those that focus only on exam preparation may be more effective in raising their test scores. In this setting, the students with the lowest skills are no longer the ones with the lowest scores, and they are more likely to be selected for admission compared to students who potentially may have better ability.

Additionally, research has suggested that entry examinations contribute to an increase of pressure on students with lower grades. As a result, competition for prestigious schools has become so hard that they are almost inaccessible for

students that do not perform well at entry examinations. Consequently, low performers, who are often students in vulnerable economic conditions, can find the processes of transition more difficult (West et al. 1998).

It is important to highlight that there are other means of selection used during educational transitions. In some contexts, the admission criteria are grades and students' class rank and this kind of selection achievement is the means used to qualify students that would be selected. Here studies have shown that considering students past educational history may be a better predictor of college success (Perez Torres 2004). Previous performance may be used as a proxy of students' effort and motivation,¹⁷ as well as a predictor of knowledge and ability.

Additionally, its use may overrule the effects of students' background because they would not need to compete the stressful process of one examination that defines their chances to progress (Walpole et al. 2005). Nevertheless, this kind of admission mechanism has the disadvantage of not allowing a feasible comparison between students that come from different schools, which diminishes its validity.

Other literature on the efficiency of educational selection has focussed on how it may be mediated by gender and other characteristics. Lowe and Cook (2003) suggested that gender differences in education transitions can be mediated by their educational attainment. Girls tend to do better in reading, while boys tend to do better in mathematics. Therefore, studies have suggested that assessments tend to have a gender bias against boys, as girls' reading ability is higher.¹⁸

17 Regarding the importance of attainment and ability on students' transitions, the literature has studied the link between academic motivation and successful transitions. Motivated students tend to have higher academic achievement and higher fear of failure. This motivational profile makes students have mastery-oriented goals towards learning where progression in education becomes a major goal. These students characterised by high levels of school value and engagement, report low levels of cynicism, which is positively associated with the capacity to complete education transitions to secondary level (e.g., Daniels et al., 2008; Tuominen-Soini et al., 2008, 2011). Conversely, prior research has shown that while students who strive for success achieve well, they may also worry more about possible failure and are susceptible to emotional distress which has been found to negatively affect their chances of completing educational transitions (Tuominen-Soini et al., 2011, Tuominen-Soini et al., 2008, Daniels et al., 2008). These results imply that motivational profiles can be either a risk or positive factor for educational transitions (Tuominen-Soini et al., 2012).

18 Studies have concluded that in developed countries women are doing better within education transitions than men at post-compulsory level. In the United States, for example, Lowe and Cook's (2003) work on HE access shows that male students have significantly more difficulty in studying and preparing for the transition to HE than women. Those difficulties relate to a lack of study skills and poor commitment to study, which may result in a lack of academic skill to progress specially when examinations are used. Additionally, because high school graduation tests are the main entry requirement for HE, completing high school is the first step towards gaining access to postsecondary education. Women consistently outperform their male peers in high school graduation tests and show higher chances of graduating (Buchmann et al., 2008). As a consequence, those that fail to earn a high school diploma and are counted as "status dropout rate" will not be able to apply for HE. Since 1990, the status dropout rate of females has been lower than that of males; and despite varying substantially by ethnic group, male disadvantage persists for all major groups (whites, blacks, and Hispanics)(Snyder, 2008).

Another important point to consider in the selection is that ethnicity may influence students' chances to progress and complete successful education transitions. Evidence has shown that racial minorities are more likely to under perform at entry examinations (Nichols et al. 2010; Walpole et al. 2005). Ethnic groups in Latin America are considerably more likely to have low performance (Reimers, 2000) as they remain economically and socially marginalised. Thus in education transitions as well as in entry examinations, minority groups may be at a disadvantage because of the intertwined relationship between poverty and ethnicity.

Finally, it is important to highlight the complex link between the efficiency and effectiveness of the selection. Education systems on the one hand aim to provide equal opportunities during educational transition to all students; while on the other, they expect to be as cost effective as possible while selecting the students that have the greatest chances of completing and graduating. Nevertheless, the relationship between students' ability or achievement and their social background is complicated. As a consequence, any selection mechanism has to deal with this intertwined relationship as it could affect the type of selection performed, the probabilities of progression and students' perceptions of future transitions and expectations. In the following section the effect that education transitions have on students' construction of educational expectations is reviewed.

2.3 Education transition and the construction of educational expectations

The study of the causes and effects of admission and selection mechanisms used during the transition to UPS is relevant because the students involved in such transition are adolescents. Vast literature suggests that education transitions during adolescence are one of the most stressful and defining life experiences (Sitlington and Clark 2007; Wallis and Barrett 1998; West et al. 2008). During adolescence, students develop orientation to the future and become more focused on their desires and aspirations, which affects future plans (Beal and Crockett 2010). During adolescence aspirations become more realistic, which has proven to be an important predictor of future education attainment and employment (Beal and Crockett 2010). Finally, research has also shown that during adolescence

expectations are highly unstable. Therefore, it is very likely that during the transition to UPS, students' expectations may adjust greatly (Gottfredson 1981) and be highly affected by the admission and selection mechanisms used in their transition.

In this section I present a review of the literature on the relationship between education expectations and education transitions, as well as the use of assessment for selection. I firstly define educational expectations and how they are different from aspirations. Secondly, I will present a literature review on the relationship between admission and selection mechanisms and students' education expectations.

2.3.1 What is an educational expectation

Aspirations and expectations are not the same, although both involve self-perception about the future. Eccles et al. (2003) argue that aspirations are initially developed as representations of possible future outcomes. These representations have the characteristic of being vague and are constructed based on societal norms as well as on parental expectations and perceptions. As adolescents gain experience, they develop more self-knowledge, which leads to further refinements in their aspirations (Eccles et al. 2003). Several studies have analysed the differences between aspirations and expectations. Gottfredson (1981) stated that aspirations are based on possible options, while expectations rely on choosing the most likely outcome that an individual can pursue. As a result, aspirations are less realistic than expectations.

Educational expectations work as assessments of how far an individual may reasonably expect to go (Dominitz and Manski 1997). Expectation is a preconceived idea or opinion of what could happen (Azmat et al. 2013). For the construction of an expectation, a desire is required. However, as the aspiration can be unrealistic, the expectation chooses which outcome is likely to happen and therefore more realistic to aspire for. In this sense, an expectation may be more real or factual than an aspiration, given the information available and the current situation of each individual.

Educational aspirations in practical terms can be defined as what students perceive will be their educational future, and is generally seen as the educational level students would like to attain. That aspiration is constructed regardless of ability and any other institutional, social and economic constraints that they may face (Hanson 1996; OECD 2013). Education expectations, on the other hand, reflect more realistic assessments of future opportunities because they take into consideration abilities and potential, as well as actual circumstances (Goyette 2008). Hence even though students may have the same educational aspirations, (which in adolescence are normally high) not all will have the same educational expectations, as the likelihood of earning a diploma is affected by causes out of their control (OECD, 2013).

As a result, expectations are closely aligned to, and affected by the context in which a student is living and studying. Therefore, when students experience a transition process and its means of selection, it is more likely that their expectations would be affected rather than their aspirations. Studies using economic measures have predicted that the decision of how many years of education individuals want to obtain is influenced by the expected costs and benefits of staying in education, existing financial resources as well as, current and expected labour market opportunities (Becker and Hecken 2009; Perna 2000). In this sense, when students have poor financial resources they realise that the costs may exceed the benefits of education which subsequently diminishes students' education expectations (Perna, 2000). This approach suggests that students will choose rationally the education level they would like to attend based on the information that they have available in the present.

It would therefore be expected that most of the students coming from disadvantaged backgrounds will have low education expectations, while students in better positions would have progressively higher expectations. In that sense the distribution of educational expectations would be a reflection of students' economic and social background. Nevertheless, quantitative studies have shown that educational expectations have risen over time, and this rise is not aligned to students' socioeconomic background. This was found to be true for the case of the

United States of America (Conchas 2001; Goyette and Xie 1999; Goyette 2008) and for many OECD countries (Buchmann and Dalton 2002; Buchmann and Park 2009).

Some studies have argued that the rise of educational expectations is related to the fact that the social backgrounds of students has changed and their general conditions have improved. Nevertheless, it is not strictly an issue of changing economic status. Goyette (2008) explains that in the United States there has been an increase in those achieving college- level qualifications. This population as parents then seem to have encouraged their offspring to expect HE qualifications. Goyette tested students that have parents that went to university and found out that they invested more in education (i.e. by sending their children to private schools). Those factors were found to have a strong and significant association with having higher expectations. Therefore, it is not simply higher income that increases education expectations, but the decisions and educational opportunities that come with it (Buchmann et al. 2008).

Nevertheless, students from low-income families seem to have high educational expectations. Buchmann and Dalton (2002) suggest that low-income families consider education as a route to social mobility, and perceive it as an improvement in social prestige. Furthermore, Recchi (2007) shows that a father's credentials can be a strong predictor of the odds of his children attaining tertiary credentials, as well as their expectations for further education. An explanation for the phenomenon used by Recchi is that parents use a 'relative risk aversion' strategy to avoid letting their children be in a position that is worse than their own (Breen and Goldthorpe 1997). Therefore, despite being in a low economic position parents now encourage more of their children to aspire for further levels of education and consequently their children's' educational expectations are higher.

2.3.2 The construction of education expectations, the effect of admission and selection mechanisms and students' social characteristics

In this subsection I review literature on how the transition process affects the construction of educational expectations. Yet there is an important gap in research. To my knowledge, there are no studies that directly address how the transition process to UPS affects student expectations or how they may change during such processes. Therefore, in this section I include a review of how the structure of

education systems relate to students expectations, as well as considering other factors that the literature has found to be associated with the construction of education expectations. This review will be used to make inferences on how students' expectations may be affected by transition processes and their means of selection.

Research has suggested that adolescents' expectations are important predictors of future attainment and enrolment. Adolescents who believe they will achieve academic success are more likely to do so, when compared to their less optimistic peers. Students' expectations of further education not only reflect academic success and students' skills. They also create the conditions that promote academic achievement and skills development (Perna 2000), which may be positively related with students' progression and transitions.

The OECD found that 15-year-olds who expect to get a university degree are more likely to choose academically demanding courses in the school as a mean of preparation. They also invest greater effort in school than students who expect to complete their studies with lower qualifications (OECD 2013). With PISA 2009 data it was also found that students who hold high expectations are more likely to engage in academically oriented activities during their free time. It is therefore argued that the development of educational expectations is important as they may define behaviour that is aligned to the pursuit of goals.

There is some literature that explores how the structure of the education system affects student's educational expectations. Research on the impact of education systems on educational aspirations and expectations suggests that the degree of stratification in the education system, the system's orientation towards vocational training and its standardisation have important influence on students' construction of educational expectations (Kerckhoff 2000; Muller 1998). Kerckhoff (2000) compared American and English educational systems and showed that social origin and ability plays a greater role in explaining educational expectations among English students than among American counterparts. The results were attributed to the structural differences of English and American systems. English systems support more realistic aspirations because of its emphasis on early achievement determining the type of secondary school a pupil would attend. Conversely, the

American system does not provide the same structural constraints, and as result, students maintain lofty aspirations until late in the educational process when students come close to high school graduation and realistic assessments of career options need to be made. Although this study does not directly focus on the differences in the use of entry examinations, the transition processes between the two contexts and their relationship with educational expectations, there are a few inferences that can be made. The British system encourages students to take examinations at an early stage and this can define their school options. This is attributed to promote realistic education expectations. The American context on the contrary does not use test at early age, therefore their expectations seem to be less realistic. Hence a system with extensive use of entry examinations may encourage students to construct more realistic education expectations at an earlier age than a context that does not.

Moreover, research shows that education systems that provide “institutional information” to students about their prospects in further education have a positive effect upon their expectations. Such information can be used to create more realistic aspirations and expectations and ensure that there is a solid link between students’ performance and their expectations (Buchmann and Dalton 2002; Kerckhoff 2000). The OECD (2013) reports that the separation of students into different educational tracks or classes¹⁹ and streaming policies makes students clearly identify their chances and opportunities available. This makes them much more likely to hold realistic expectations because they can read the opportunities available to them by type of track and stream. The literature suggests that students in stratified systems are more likely to have concrete information and realistic expectations than other forms of education systems as those systems have more visible obstacles to their progression.

Furthermore, Lee (2013) compares the effect of academic and vocational tracks on students’ educational expectations and whether the effect varies across those with different socioeconomic status in Austria, a country with an early tracking system, and Italy, a country with a later tracking system. The significantly higher

¹⁹ School tracking is defined as ‘sorting students into groups, classes and schools as they progress into the public education system’ (LeTendre, Hofer, and Shimizu 2003).

educational expectations in Italy compared to those in Austria were explained by differences in the education systems between the two countries. Italy has not developed vocational tertiary education to the extent that other countries have, and only a small number of students attend vocational tertiary institutions. Thus, by knowing that most tertiary institutions are of the academic type, it is possible that students in Italy have higher probability of expecting HE credentials (Lee, 2013).

Van Elk, Van der Steeg, and Webbink (2011) found a negative effect of early tracking on the probability of completing HE. Early tracking systems make students choose vocational education early on, which may lower their educational expectations (Van Elk et al. 2011). Additionally, Buchmann and Park (2009) argue that students in early tracking systems have lower expectations because they are being more realistic. Students in each track develop realistic views about how far they will go in school and what kind of job they are likely to get from the types of school they attend (Buchmann and Park 2009).

Another way that education systems influence education expectations are through the standardised tests and assessments they use. With such tests students can measure their chances based on the exam's scales. Students calculate the likelihood of being able to advance along different educational paths and therefore their expectations. Buchmann and Dalton (2002) suggest that institutional information reduces the influence of peers, parents, teachers and social background in forming expectations. However inequalities in expectations may remain if access to this information is different among students with different background characteristics (Buchmann and Park, 2009, Buchmann and Dalton, 2002).

Additionally, the schools that students attend play an important role in students' education expectations. Studies have found expectations to be affected by differences between schools. Such differences relate to factors such as a school's quality and school climate (Goddard 2003).

Other literature has studied the relationship between educational expectations and students' socioeconomic background. This literature shows that students who come from poorer backgrounds tend to believe that they are not likely to achieve

the level of academic achievement that they would like to. Their educational expectations are adjusted by their predictions of their future success. Therefore, results indicate that students who do not perceive that achievement is feasible, reported lower educational expectations and have fewer educational transitions (Boxer et al. 2011). Performance is widely associated in the literature with social background. The amount of social and cultural capital, as well as the ability to convert this capital into educational attainment, differs by social class, race and ethnicity. This phenomenon has important implications for the construction of students' expectations (Wells and Crain 1994).

With regards to how students' personal characteristics affect their expectations, most literature has focused on issues of gender and ethnicity. Studies have shown that girls' educational expectations are directly linked with their background (Marini and Greenberger 1978; Rosen and Aneshensel 1978). Girls of particular ethnicities and practising certain religions are believed not to require extensive education, as their role as mothers and housekeepers do not necessitate further study (Dorius and Firebaugh 2010; Gere and Helwig 2012; Naafs 2013). This is the case of many girls in the Global South, particularly for Muslim girls and those from African tribal cultures (Gummerson and Schneider 2013; Wilson 2011). As a result girls tend to have lower educational expectations than boys (Correll 2001).

Nevertheless, new research shows that gender differences are reversing in some contexts²⁰ (Reynolds and Burge 2008). Girls seem to be showing an increase in their educational expectations, which might be a reflection of parents' increasing encouragement for educational achievement. This is specifically the case for White students in the United States of America. Gender is therefore a variable that seem to be more important when observed with race and ethnicity, as Latino girls (Cano et al. 2012) and those from Asian backgrounds (Fuligni A. J. et al. 2005; Goyette and Xie 1999) show high educational expectations when supported by favourable economic backgrounds.

20 Changes in opportunities for women and shifts in cultural beliefs about gender suggest that boys and girls are now equally encouraged at home and in schools to pursue post-secondary education. Those changes in the structures of families and schools are concurrent with new trends in employment opportunities for women (Averett and Burton, 1996). Other studies have suggested that girls now have greater access to college preparatory courses than in the past. Therefore, family and school contexts should combine to create an educational context for girls in which their educational attainments are not held back by diminished expectations. (Reynolds and Burge, 2008).

Finally, the lack of literature on the relationship between transition processes and selection mechanism and students' educational expectations opens up an opportunity for this research to contribute in the knowledge gap. In the following section I will summarise the most relevant finding of the literature review and present the hypothesis of the thesis.

2.4 Final remarks

This chapter studied the relationship between educational transition (and their modes of admission), the selection of students and the construction of students' educational expectations.

Education transitions can be seen as systems, structured through sets of sequential steps or processes, that students have to follow to continue studying. The processes to follow in a transition system may vary, and such variation relates to particular (social, economic and political) characteristics of the context. The characteristics of the context may also affect how simple or complex, structured or unstructured, regulated or unregulated the transition processes are, as well as, how the education system provides transition information to students.

My research focuses on the transition from LS to UPS. Therefore when I describe the transition processes I will refer to the set of goals that UPS level institutions have to guide student selection in Mexico. Also I refer to how the education system recruits new UPS students, as well as, the sets of methods used to select and grant admission. When talking about the processes I am concerned with their characteristics, specifically how they promote or do not promote opportunities to access UPS. Therefore, I study the transition to UPS not only by its mechanisms of selection and admission but also by its complexity. It is relevant to note that I do not focus on how students experience the transition between LS to UPS; instead I try to understand how the processes of transition to UPS work.

This chapter reviewed the literature that relates to education transitions and the use of selection mechanisms. It has been suggested that the role of entry examinations, as well as their influence, varies greatly by context and thus the effects of assessments on students' selection are not universal but contingent to the context where examinations are used (Little 1996). The literature also suggests

that perhaps the most important characteristic that distinguishes the differences in transition systems is how standardised or homogeneous the use of examinations is. I subsequently proposed a framework to study the characteristics of transition systems by means of the standardisation of procedures and the mechanism of selection employed.

In the chapter I also presented evidence that education transitions and their mechanisms of selection and admission define who is selected. Therefore, in this thesis I put special emphasis on looking at how the homogeneity/ heterogeneity of the processes used in the transition, as well as the mechanisms used in the selection, affect the effectiveness and efficiency of the selection. In the following chapter I present the research questions and objectives that guide the research, as well as, the methodology and methods.

Chapter 3. Methodology and analytical framework

This chapter aims to describe the methodological and analytical framework used in this research. I subdivide this chapter in five sections. In Section 3.1 I present the objectives and research questions that the study addresses, as well as its general hypothesis. In Section 3.2 I describe my research positionality and reflexivity, as well as introduce the methodology. This research uses a predominately quantitative approach. In Section 3.3 I present the methodology, methods and data collection of the political economy analysis, while in Section 3.4 I do the same for the study of selection and educational expectations. Finally, Section 3.5 states the scope of the investigation and summarises its limitations.

3.1 Objectives and Research Questions

This thesis explores the transition process to UPS level in Mexico. In particular, it investigates the relationship between the different modes of admission and selection used in the transition to UPS and students' selection and educational expectations. For that purpose, the main research questions that guide this thesis are as follows:

1. What are the underlying factors that affect the different transition processes to UPS level used in different States in Mexico?
2. What are the characteristics of 15 year-olds selected at UPS and how do they differ in States that use different transition processes?
3. How do 15 year-old students' educational expectations differ by the transition process used where they live?

To respond to the main research questions a subset of questions have to be addressed. The first research question has the following sub-questions:

- (i) What are the characteristics of the transition processes to UPS?
- (ii) What factors are associated with the observed differences in the transition process to UPS in Mexico?

For the second research question, I pose the following three sub-questions:

- (i) Do different transition processes promote different socioeconomic compositions of students in UPS?
- (ii) Do different transition processes promote different achievement compositions of students in UPS?
- (iii) Does the level of marginalisation of the States where students live promote different selections of UPS students even when performed under the same transition process?

Finally, for the third research question I investigate the following sub-questions:

- (i) Are there differences in the expectations of LS and UPS students by the type of transition process experienced?
- (ii) Do the particularities of the State where students live differently affect the educational expectations of students who experienced the same processes of transition?

The following (null) hypotheses guide the dissertation.

- State education systems' differences and general characteristics do not affect the type of transition process to UPS used in Mexico.
- The differences in the transition processes to UPS do not affect the socioeconomic and achievement composition of the students selected at UPS.
- The differences in the transition processes to UPS do not affect the educational expectations of the students selected.

In the following subsection I present my research positionality, reflexivity, as well as my methodology.

3.2 Methodology, positionality and reflexivity

In this thesis I conduct social research to investigate the transition to UPS level in Mexico and how it may affect the selection and expectations of students. Social research is defined as a set of recursive and reflexive research practices to study social phenomena (Millen 1997). Because of its nature, social research raises the methodological and epistemological issues of positionality, power relations between the researcher and researched, construction of knowledge or "truth",

situations and context, subjectivities and representation (Millen, 1997). The study of the transition to UPS level in Mexico, as it is a social phenomenon, does not avoid issues of positionality. These issues, which I will discuss in this section, arise in the way I expect to construct knowledge and how I reflect upon and analyse my findings.

The aim of this research is to construct an in-depth understanding of how the transition to UPS works to then explore how it may affect the selection of students, as well as their educational expectations. The nature of the topic of analysis suggests that the research design cannot only use quantitative methods. Therefore through a political economy analysis I aim to respond to the first research question. I develop an inductive approach to study the process of transition to UPS to identify the factors that have defined the heterogeneity on which the transition process to UPS works in Mexico (Chapter 5). This analysis will allow me to perform a characterisation of the transition process to UPS. Secondly, through quantitative analysis I will respond to the second and third research questions. I will use the characterisation of the transition process to further study the relationship between the different processes and students' selection (Chapter 6) and educational expectations (Chapter 7).

The methodological and epistemological issues of positionality and reflexivity in social research have been widely discussed. Yet, quantitative researchers generally avoid the topic (Ryan and Golden 2006). One reason for this is that quantitative research often uses positivistic models where the researcher is meant to be "neutral".²¹ Quantitative research has been widely criticised because it rarely acknowledges the researchers' power, cultural agenda and assumptions (Mauthner and Doucet 2003) as well how, where or by whom the data is collected and how that may affect or bias the results (Ryan and Golden 2006).

Research methodology literature recommends that researchers should make explicit how they situate themselves in the field of analysis, as well as how they expect to interpret and reflect on their findings (e.i. Bryman, 2006, Ryan and Golden 2006 and Dunne et., al 2005). Therefore, I need to perform an exercise of

²¹ That neutrality is reinforced by the use of computer-aided programs for data analysis which confer "scientific objectivity" (Mauthner and Doucet, 2003.)

recognition and consideration of my own position in relation to my area of study (Rose 1997).

I acknowledge that constructed knowledge is marked by the researcher's position and origin, as well as the context in which research is performed. Madge (quoted in Rose, 1993) suggests considering and expressively showing, positionality (race, nationality, age, gender, and social and economic status) as this may influence the type and nature of data collected and thus the findings, as well as how these are interpreted. This exercise is recommended even for quantitative research. In my research this discussion and reflection is even more relevant as my positionality will influence both how I observe the transition to UPS level and the type of characterisation of the process that I will create. Moreover, the characterisation of the transition process will be the main focus of analysis in the quantitative study. Therefore any reflection on my findings has to be acknowledged to be entangled with my views on transition, equality and achievement.

I am middle class woman born in 1982 who experienced the effects of the economic crisis in 1993 and 2007 in Mexico. My father comes from a working-class family with a history of striving to progress. Because of such efforts my grandfather was the first one in his family to hold a university degree, which at the time was a great accomplishment for someone from that social background. Hence I received first-hand information of the value of educational credentials, how they change overtime and how they relate to status and social class.

As middle class in Mexico normally do, I studied in private school up to UPS, then I joined a public university. I observed how because of my background I had an advantage, which allowed me not only to pass the entry exam but also to get admission into my first school option. When studying at college I observed the sacrifices some students had to make to continue studying and how proud they were of having reached HE. I enjoyed listening to my classmates' stories. They talked about their transition to UPS, the process of selection and the difficulties they faced. I was impressed because I did not have to compete for a place in UPS as there are no selection mechanisms in private schools. This life experience not only motivated me to study educational progression but also made me sympathetic to the issues my classmates described. Consequently, I study the transition to UPS

with the view of these students I mind. I want to analyse the processes and procedures critically to observe whether they enable students to make it through.

I went into the field of education research because of my personal interest in how education can be a tool to break intergenerational social disadvantages. For me it became a matter of social responsibility to study how my less economically advantaged peers can receive the same education opportunities. I believe that the transition to UPS is perhaps the greatest obstacle low-income students face in their education progression. I believe that the complexity of that transition may also be the reason why low-income students do not get into HE. For that reason I think that understanding the differences between processes used according to where students live is useful as it can help to understand how those students can be supported.

It is important to state that I am a researcher who came into the education field with a practical motivation, while being less interested the theorisation and philosophical discussion of education. Because of my quantitative background²² I find secondary data to be a good source of information because of its extensiveness. Nonetheless, I understand that such data may be biased by the way the collection is designed. Additionally, I am aware that the use of secondary data can generate interpretation problems due to the type of sampling, how the questionnaires' questions are phrased and the kind of information they provide, amongst others. Therefore, I try to observe my results critically.

I do not deny that my critical view is constructed through my position as a middle class woman. On the contrary, I find it to be an advantage that allows me to reflect on the problematic nature of education transitions. My reflexivity about the findings of this thesis is situated in the spaces I experienced. Smith (1996 quoted in Rose, 1997) emphasises that such spaces of experience enable the construction of knowledge as a result of the transition from local knowledge to academic knowledge, regulated by context relations. So my own positionality gives meaning to my findings as helps me to interpret and make sense of them. Although I expect that my positionality will support my interpretations of transition, I will not claim

²² I hold a BSc in Economics and a Masters degree in Administration and Public Policy

that my findings are universal or applicable for all contexts as social relationships are highly contextual (Harding 1991).

Most importantly, I am aware that I cannot capture the effects of the transition processes on students' selection and expectations. This awareness has made me observe my own research findings not as causal relationships but entangled in the complexities of the transition processes and other factors that I cannot measure. I acknowledge that the data available does not allow me to capture in whole the variables involved in the transition process (I will discuss this point more broadly when talking about the limitations in Section 3.5). Therefore, I cannot claim that the findings are causal effects of the differences in transition processes.

The two parts of the study, as well as the sources of information they use, are described in more detail in the following sections

3.3 Political economy analysis of the transition process to UPS in Mexico

The ontological position in the political economy analysis is constructionist. Social properties are seen as outcomes of the interactions between individuals rather than phenomena separate from those involved in its construction (Bryman 2001). The methodology uses a qualitative documentary analysis²³ as I collect data through an extensive review of documents and reports to categorise, investigate, interpret and identify relevant actors and their role in the way the transition process works in Mexico.

The documentary analysis has several advantages in social research. The first is that the documents to be reviewed were not produced for the research analysis and therefore are expected to be more impartial and unbiased in terms of this research.²⁴ Consequently, views are expressed in a more honest way than when people are interviewed or observed by a researcher with their own set of

²³ It is interesting that documentary analysis has not been as widely used as other methodologies (such as ethnography, action research or case studies) in social research (Mogalakwe, 2006). The reason for that relies on the popularity the use of surveys, in-depth interviews and participant observation has in social research, as they have been tried and tested extensively. Documentary analysis has been neglected as a methodology only useful for professional historians and librarians where due the nature of their research other methodologies might not be accessible, useful or relevant (Mogalakwe, 2006).

²⁴ The literature suggests that individuals and groups produce documents during their everyday practices; therefore, documents reflect their own immediate practical needs.

objectives (Bryman 2001). Secondly, a document can supply credibility to the results, as documents are independent from the researcher. Thirdly documents, unlike a speech, represent a wider view of reality beyond the writer and beyond the context of its production (Mogalakwe 2006).

However the use of documents has an important disadvantage. Documents can be partial as they constitute particular views of the institutions or the writer who provides the information (Mogalakwe 2006). The documents reviewed in the study come from both official sources and nonofficial sources, as well as academic literature related to the process of transition to UPS and the decentralisation process involved in the process. In the analysis of the documents, I am particularly interested in the construction of an explanation and interpretation of why the transition process works the way it does. That construction requires a deep and insightful description of the context, which such documents provide. Bryman (2001) suggests that it is as important to provide a detailed account of what goes on in the setting, while also to reach a certain level of detail in the understanding of the context, in order to interpret its significance.

In the political economy analysis of the transition to UPS I investigate the actors involved and how they interact with and within the (formal and informal) institutions within the process. To identify such actors, institutions and interactions, I reviewed documents, focusing on looking for any official guidance on the transition process between LS and UPS, both at Federal and State level. The objective is to construct an understanding of the decentralisation process in Mexico, the different actors that participated and their level of influence over time. Through that foundation I aim to be able to identify the different economic, political and social characteristics of the States and how they are related to the way the transition process to UPS operates. More in depth aspects of the methodology, data collection, data revision and selection, as well as the political economy methodology itself are explained in Chapter 5 and the appendix of the chapter.

This analysis helps me create a characterisation of the differences in transition process to UPS by State level. This characterisation is translated into a categorical

variable²⁵ of the transition process with 4 categories that relate to differences in the extensiveness of procedures and type of selection mechanisms used as presented in Figure 2.1. This variable is further used in the quantitative analyses.

3.3.1 Data used at the political economy analysis

The documentary analysis gathered official documentation about the regulation of the education system, such as the National Constitution, the General Education Law (Ley General de Educación, LGE) and the Agreement to Modernise the Basic Education (Acuerdo Nacional para la Modernización de la Educación Básica, ANMEB). Additionally, it collected and reviewed documents that provide official guidance on the transition processes between LS and UPS, both at Federal and State level.

Moreover, I conducted an internet-based search of the information available on the SEP's website, as well as on the websites of the 31 States' education ministries. The search focused on the existence of an UPS level website that contains relevant information on application and admission at UPS level. This search was performed three times during the research - the first one during June-September 2011, the second during February-March 2012 and the last one in October 2012. The aim was to check what information ministries have available at different points in the academic year and to check for the impact of changes arising from the recent reforms of the UPS system.

Furthermore, I spent time in Mexico during three periods (December 2010 to April 2011, December 2011-February 2012 and July 2012-September 2012) to collect data from SEP and other relevant institutions who are involved in the transition (more information regarding this can be found in the appendix of Chapter 5). During these periods I observed the information available to students about the transition to UPS. I collected the information published from official and nonofficial sources regarding application, procedures, deadlines and costs in the transition process. The objective was to construct an understanding of how the transition is organised by each State. By State I performed a search online for the procedures to

25 A nominal variable contains only qualitative information. This type of variable measures whether an individual belongs to certain distinct categories. This variable does not quantify neither rank the order of the categories. Nevertheless, the variable does not contain order as purely arbitrary values are assigned to the categories (UNESCO, 2009b).

apply to UPS level, the types of application used and the processes of selection. The sources used are intended to be those available to students, such as media (electronic, written and television) and official websites, as well as information published by related organisations such as LS and UPS schools, private schools that provide entry examination support and examination institutions.

The online search had the aim of evaluating students' ease of access to information on UPS options, processes of transition, admission requirements, procedures and costs. The online search was performed using the Google Internet search engine. Google was selected because it is commonly considered as one of the most popular search engines and it is widely used by students and young people to obtain information.²⁶

Furthermore, an academic literature search was performed to identify sources of information about the decentralisation process in Mexico as well as its relationship to the way the system operates in the transition to secondary level education. For this purpose I reviewed Mexican education journals, as well as publications from other international sources.²⁷ All information sources are listed in the appendix of Chapter 5.

Additionally, I collected information on the States' levels of economic marginalisation and the education system's characteristics based on information provided by *Consejo Nacional de Población* (National Population Council, CONAPO) and the SEP. In particular, the marginalisation information and its categorisation were used to analyse the relationships between the States' level of development and the type of transition used. This categorisation is also widely used for the quantitative studies.

Finally, the information collected was put together to evaluate its relevance by creating a map of what sort of contribution they provided to the objective of the research. Documents that did not include the necessary information, or in other

²⁶ The first and second stages focused on the information that anyone willing to study UPS will look for in obvious places. It would expected that education ministries will provide transition and application information considering that the education level is regulated. I also looked for information in the media as is likely that some kind of advertisement should take place to inform students that the admission process has started.

²⁷ The OECD mainly has a wide range of research done on the education system in Mexico and some publications on decentralisation that were particularly useful.

words, that did not contribute to explaining how the transition process works or whom it impacts were discarded.

3.4 The different transition processes and students' selection and expectations

The study considers the relationship between the different transition processes (investigated by the qualitative analysis) and students' selection and expectations. Using quantitative methods I construct an empirical investigation of the transition process to UPS using statistical and econometrical techniques.

I first construct a statistical description of the education system and the context of transition between LS and UPS in Chapter 4. The results of this analysis are used to establish the grounds of the relationship between the transition context and students' selection and education expectations in Chapters 6 and 7.

The analysis is subdivided in two:

1. The analysis of the efficiency and effectiveness of the selection performed under different transition processes, in Chapter 6.
2. The analysis of relationship between the different transition processes and students' education expectations in Chapter 7.

The first subdivision of the analysis is based on the economic grounds of the selection. The effectiveness of selection is defined as when the transition process offers equitable access. In other words, the selection is effective when UPS students' socioeconomic characteristics are similar to the characteristics of the relevant age group, as students coming from different socioeconomic backgrounds will be represented. Conversely the efficiency of the selection is defined as when the transition process selects students at the highest level of achievement. Hence, the selection at UPS level would be efficient if the transition process enables the achievement composition of UPS students to be better than at LS level, where no process of selection was performed.

As a result of exploring the effectiveness of the selection, I consider whether there are distributional differences in the socioeconomic background between LS and

UPS under different transition processes. To investigate the efficiency, I review whether there are distributional differences in students' achievement at LS and UPS under different transition processes.

The main source of information is the Programme for International Student Assessment (PISA) data collection in Mexico, published in 2009. To analyse effectiveness I investigate students' socioeconomic background based on the index of economic, social and cultural status (ESCS) constructed by PISA; whilst to analyse the efficiency of selection, I use PISA's reading scores to measure students' reading achievement.

The second subdivision of the analysis focuses on students' education expectations under different transition processes. For this analysis, PISA 09 data collection is also my main source of information. The most important variable in the analysis relates to students' highest educational expectation, which is obtained from the context questionnaire.

For the two studies I make use of statistical descriptive analysis and regression modelling. Each method is described and explained in Chapters 6 and 7. It is important to mention that the key independent variable used in the two studies involved the nature of the transition process. This variable is constructed based on the analysis performed in Chapter 5.

Below I present some further information about the data sources used for the quantitative research. As previously stated the quantitative analysis uses PISA 09 data as the main source of information, although other sources are also used to construct the statistical description of the context.²⁸

3.4.1 Data used at the study of students' selection and educational expectations

The analysis uses the PISA 09 data alongside each States' marginalisation index provided by the National Council of Population (Consejo Nacional de Población, CONAPO).

²⁸ These sources are described in the appendix of Chapter 4.

PISA 09

The Programme for International Student Assessment (PISA) is an international study, launched in 1997, that evaluates education systems worldwide by testing the skills and knowledge of 15 year-old students. Every three years a random group of 15-year-olds in each country are selected to sit the exam. The members of the OECD participate in PISA, although certain partner countries have joined at different stages of the assessment (OECD 2009b). PISA started in 2000 with over 41 participating countries and, to date, 71 countries have taken part in the assessment. Since the 2003²⁹ collection, Mexico has requested that PISA generate a representative sample by State level (OECD 2006).

PISA's 2009 target population are 15 year-old students attending educational institutions who are born in 1993 attending the following educational institutions (OECD 2009b):

- 15 year-olds enrolled full-time in educational institutions,
- 15 year-olds enrolled part-time in educational institutions,
- 15 year-old students enrolled in vocational training programmes and
- 15 year-old attending foreign schools within the country (as well as students from other countries attending any of the programmes in the first three categories)(OECD, 2009b).

In the technical report of 2009, PISA recognises that because of the sample design the collection did not reach 15-year-olds schooled in the home, workplace or out of the country. This characteristic has important implications in my research, as I cannot observe 15 year-olds that are out of school. Hence I cannot observe 15 year-olds that have dropped out or who were not successful in the transition to UPS.

The sampling design used for PISA's 2009 assessment had two stages. The first consisted of selecting schools that have 15 year-old students. Schools were sampled from a national list of all PISA eligible schools (OECD, 2009b). The measure of sample size was a function of the estimated number of eligible 15 year-old students enrolled in the school. The second stage of the sampling used a two-stage design where students are sampled within schools. Once schools are selected,

²⁹ Mexico took part since the first collection with 5, 276 students, which was a national representative sample.

a complete list of each sampled school's 15 year-olds is prepared. For each country, a target cluster size was set. This value was on average around 35 students. These students were selected on the basis of equal probability of selection.

In Mexico the data collection was implemented in March of 2009 with a sample of 38,250 students born in 1993 enrolled 1,535 schools representative by State level. The sample has a representation of 52.4 percent girls and 47.6 percent boys. Furthermore, the 15 year-olds in the sample are predominately enrolled either in the last grade of LS (grade 9) or the first grade of UPS (grade 10), 27.4 percent and 72.6 percent, respectively.

It is important to clarify that the composition of the sample relates mainly to school entry age in Mexico, which is when the child is 6 years old by the September of each academic year. This means that students born after September have to wait until the following academic year to be granted admission to primary level education. This assumption is proved by the fact that 59 percent of LS students in the sample were born in September-December 1993, while 81 percent of the UPS sample were born in January-August 1993. It is important to keep this fact in mind as the education level differences amongst the 15 years old students in the sample do not relate to issues of repetition (only 13 percent of LS are repeaters while 1 percent of UPS are), being over the age boundary (26 percent of students just turned 16 years old in UPS) or having early school entrance (9 percent of the sample reported to have started school before the age of 6 years-old).

PISA is designed to assess how students near the end of compulsory education have acquired the knowledge and skills that are essential for full participation in that society. For that purpose, PISA does not focus on the mastery of the school curriculum but on knowledge and skills needed in adult life in three main subjects: reading, mathematics and scientific literacy. The exam is divided into each of the 3 subjects, although in every cycle of collection the focus rotates. In 2009 the focus went back to reading, while in 2012 the collection focused on mathematics.³⁰ The PISA collection in 2009 is the one used in this research. I could not use the 2012

30 In the 2000 collection the focus of the assessment was on Reading, in 2003 on Mathematics, in 2006 in Science

collection as the results were published in December 2013 when I was in the final stages of the research.

At the time of PISA testing students are given a context questionnaire in their student booklet. This questionnaire collects information such as the environment and support provided by the school, students' educational expectations as well as their socioeconomic characteristics.

The PISA 09 dataset is used to analyse the relationship between students' selection at UPS and their educational expectations, with the different transition processes found in Mexico at Chapters 6 and 7, respectively. In the analysis of students' selection I first focus on the effectiveness of the selection. For this analysis I use the index of economic, social and cultural status (ESCS). The ESCS index was first used in the PISA 2000 analysis and was derived from five indices: highest occupational status of parents, highest educational level of parents, family wealth, cultural possessions and home educational resources. The parameter of wealth was created for the first collection and uses nationally defined parameters for scaling the possessions in students' households.

In the analysis of the efficiency of the selection I use reading scores. As mentioned above PISA's focus in 2009 was on reading. Hence the aggregated reading scores are used, as is the strongest variable to measure students' ability. In the analysis I do not use PISA's categories of level of attainment.³¹ Conversely, I use the aggregated raw scores. This is important as the selection of students in Mexico is not based on their actual attainment level (even when entry examinations are used for selections); instead the selection is based on the comparative score performance of the cohort.³²

In the analysis of students' educational expectations, I use the highest educational expectation reported by students in the context questionnaire. This variable is constructed with the following questions from the PISA's context questionnaire:

- (ec05q01a) would you expect to study LS?,

³¹ PISA divides students' attainment into 8 regions or levels including 6 bounded regions labelled Levels 1b to 5, an unbounded region below Level 1b, and an unbounded upper region (labelled Level 6).

³² The reading scores of students in the sample go from 94.888 to 716.926 points with a standard deviation of 81.22.

- (ec05q01b) would you expect to study technical UPS?,
- (ec05q01c) would you expect to study general UPS?,
- (ec05q01e) would you expect to study undergraduate level (UG)?, and
- (ec05q01f) would you expect to study postgraduate degree (PG)?

The highest education level chosen is the one recorded as the highest education expectation of the student. I recorded the expectation to study Technical UPS and General UPS in one single category of UPS. Therefore, the highest education expectation variable has four categories that define students' responses on the expectation to study LS, UPS, UG level or PG level.

Among the advantages of the use of PISA in the study is that it is the only source where information on students at both the last year of LS and the first year of UPS is available. This characteristic allows me to analyse the differences in students' outcomes prior to transition and immediately after transition. Moreover, because the students in the sample are the same age it is possible to control for differences due to the level of developmental maturity among students.

Additionally, as PISA evaluates students' development of knowledge and skills it is a good measurement of the achievement of students selected at UPS compared to LS students who have not completed the transition. It is also favourable that PISA's data collection was performed in March. In almost all States, the process of transition starts in March or April. Therefore, LS students' responses regarding their expectations may be more realistic than if they asked at the beginning of the academic year.

Finally, it is worth outlining some of the limitations of the use of PISA in this study. Firstly, because PISA is not a longitudinal study, I cannot observe students' changes after completing the transition to UPS level. Consequently the findings around students' selection and expectations cannot be seen as a matter of causality of the differences due to the processes of transition. Furthermore, PISA does not include questions on the transition between LS and UPS in the context questionnaire. Therefore, there is no information on students' perception of the process.

Marginalisation Index

The Marginalisation Index is constructed by CONAPO. It is designed based on the conceptualisation that the Mexican government has produced regarding marginalisation or exclusion. CONAPO observes marginalisation as a multidimensional and structural phenomenon caused, ultimately, by the unequal distribution of progress and the exclusion of various social groups from the benefits of development (Consejo Nacional de Población 2011). Thus, marginalisation is not only associated with the lack of social opportunities and the lack of capacity to acquire or generate them, but also with deprivation and inaccessibility to basic goods and welfare. There are four dimensions of exclusion that reflect marginalisation: 1) populations without education, 2) populations without sanitary services, 3) populations with a low income and 4) populations living in small towns. The marginalisation index is constructed using these measurements at State and municipal areas; the highest value of the index indicates less opportunity to access the benefits of development.

In operational terms the Marginalisation Index provides further categorisations to measure the differences in States' level of marginalisation - as very high, high, medium, low and very low levels of marginalisation. These categorisations are also used in the political economy analysis to analyse their relationship with the different transition processes and their impact on students' selection and education expectations.

3.5 Research scope and limitations

I aim to investigate the relationship between different modes of selection used in the transition to UPS level and students' selection and educational expectations. I use predominately quantitative approach for the analysis, where I use a political economy study to inform the study. My political economy analysis helps me to understand the dynamics of the different modes of transition used. It also enables me to provide a categorisation of the type and nature of transition and selection mechanisms that are being used at State level in Mexico. Additionally I study the relationship between the achievement and socioeconomic background of students

selected under different transition processes as well as its relationship with students' educational expectations.

The results of both the political economy analysis and quantitative studies are equally important; nevertheless, the quantitative studies have more weight in how I present the results. My aim is not to undermine the relevance of the political economy analysis. On the contrary, I expect that the way I organise this thesis will highlight how important the differences are in the modes of selection and admission used during the transition to UPS. For the quantitative analysis it is important to highlight that I do not claim to unpack issues of causality. There is no longitudinal data that I could use to track students at LS and UPS; therefore it is not possible to observe students before and after the transition. This has important implications in the analysis and affects the kind of inferences I can make regarding the results. I have information about students at LS and UPS level and whether they show differences in socioeconomic background, reading scores and expectations. I assume that if there are differences between LS and UPS students these may relate to the process of transition. However, I only observe the differences in the proportions. So I cannot observe whether students were pushed out during the transition process or whether students dropped out and this affects the scope of the inferences that can be made. Consequently, my findings cannot claim to test causality. The findings in this sense are not observed or analysed as causal relationships but as possible explanations of observed pattern differences between transition processes.

Indeed, the lack of longitudinal data has important implications in the study. I cannot observe the expectations of students before and after the transition process or whether these change over time. What I observe are expectations of LS students that are about to experience the process of transition and the expectations of UPS students after the process of transition is completed. Therefore, I study their changes in attitude and make inferences on whether they may relate to the process of transition experienced. Hence, as for the study of selection, my findings will be used to draw inferences about the relationship between the different processes of transition and students' educational expectations, rather than assuming causality.

Finally, I believe that the limitations that this research faces do not damage the scope and contributions this research offers in the field. The research provides an insightful review of how context and historical conditions can affect and determine the type of admission and selection used in the transition to UPS and draws inferences about how the selection and admission mechanisms used may affect the selection and expectations of students. This thesis therefore provides an important contribution to the field because it analyses several modes of transition within the same context. This allows controlling for contextual differences that other comparative studies of transition differences could not (i.e. Kerckhofmilesi, 1977 and Milesi, 2010). Therefore, my research and the inferences I draw as a result highlight the importance of studying educational transitions, as well as providing a good foundation for future research in this area.

Chapter 4. Transition between lower secondary and upper secondary in Mexico: Defining the problem

This chapter describes the Mexican education system and provides an overview of the context of the LS and UPS levels, in order to understand the problem of the transition to UPS level.

The chapter is structured as follows. Section 4.1 describes the Mexican education system and presents its' most important characteristics. Section 4.2 focuses on LS education. Section 4.3 focuses on the transition to UPS while describing students' opportunities to complete LS and enrol at UPS level. Finally, in Section 4.4, I highlight the most important results.

4.1 Brief review of the education system in Mexico

In Mexico, the education system is structured into five levels: first, three years of preschool education (ages 3-5); second, six years of primary at a compulsory starting age of 6 years-old (grade 1 to grade 6); third, three years of LS for children between the ages of 12 to 14 years-old (grade 7 to grade 9); forth, three years of UPS for young people ideally between the ages of 15 to 18 (grade 10 to grade 12); and finally, HE (Instituto Nacional para la Evaluación de la Educación 2006). Therefore, a normal school trajectory from basic to higher education without interruptions would last between 16 to 20 years depending on the field of study. Figure 4.1 shows how the education system is structured and summarises the types of schools provided at each education level, as well as the age groups that each level should ideally enrol.

The government is officially responsible for providing compulsory basic education, which includes: preschool since 2002, primary since 1867 and LS since 1993 (Instituto Nacional para la Evaluación de la Educación 2009c). In 2010 the government made UPS part of compulsory education (Camara de Diputados del H. Congreso de la Unión, 2012), but this only came into effect in the 2012-2013 academic year. The Mexican Constitution (Article 3) states that "basic education (pre-primary, primary and LS) shall be free of charge, non-religious, and publicly provided; basic education and UPS education will be compulsory (...) The State will

also provide higher education (...) The education provided by the government shall be of good quality and free of charge”.

As we can observe, there is a slight difference between what is considered basic and compulsory education. The constitutional amendment in 2010 suggests that basic education continues to be from pre-primary to LS and adds that UPS level should be considered to be compulsory education. The difference is that basic education is free and as UPS is not part of basic education, the government is not pledging to provide it free of charge.

Figure 4.1 Structure of the Mexican Education System

Education Structure	Education Level	Type of Schools Available	Age	Duration in Years
Compulsory Basic Education	Preschool	CENDI, General Indigenous, and Communitarian	3-5	3
	Primary	General, Indigenous and Communitarian	6-11	6
	Lower Secondary	General, Technical, Communitarian, Distance LS, and LS for Workers	12-14	3
Upper Secondary	Upper Secondary and Vocational Education	General Schools, Technical and technological schools	15-17	2-6
Higher Education	Undergraduate and Postgraduate education	Universities	-	-

Source: Own elaboration.

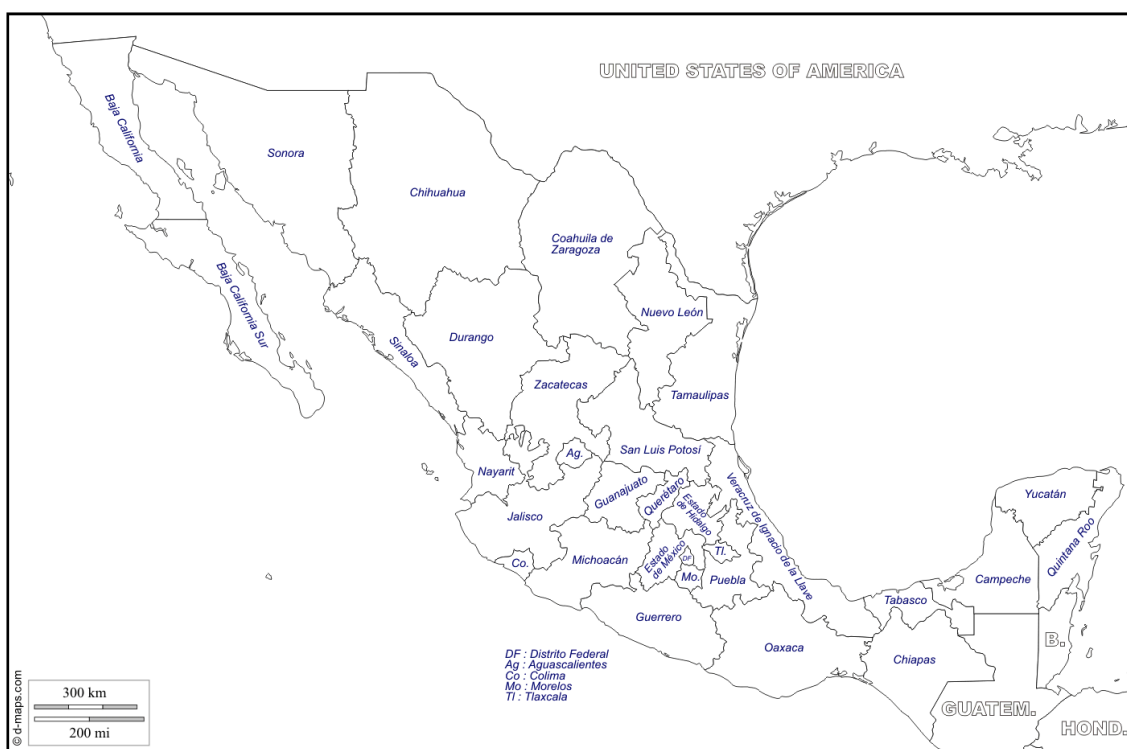
In the following subsections I present a review of the regulation and funding of the education system, as well as the most important outcomes of each education level.

4.1.1 The education system's regulation and funding

Mexico is a Federal Republic integrated by 32 federal entities: 31 States and 1 Federal District. Figure 4.2 shows the political division map. Mexico's education system is decentralised over 31 States. In 1992 the Federal Government (FG) and most of the States signed the National Agreement to Modernise the Basic Education (Acuerdo Nacional para la Modernización de la Educación Básica, ANMEB) where it was agreed that the FG would transfer the funds to operate education services and to train teachers in the States, except the Federal District

(Mexico City) which remains to date regulated by the SEP. The ANMEB also funds the school infrastructures and financial resources, and provides technical administration and management for the States (ANMEB 1992). Moreover, it enforces and makes States co-responsible for increasing their own funds for education and for improving quality, managing enrolments and guaranteeing equality.

Figure 4.2 Political map of Mexico



Source: Political maps of <http://www.mapamudopolitico.com/>

With decentralisation, States are supposed to have a greater influence on educational policy design, but research has suggested that the capabilities in doing so vary greatly among States (Latapí 2009).³³

States receive their education funds in two ways, either, directly from the FG or through the SEP central. Since 1997, States receive their budget from the FG

³³ The decentralisation also does not entitle State educational authorities to choose their own curriculum at primary and LS level, they must follow the one nationally designed and approved. In addition, States must use the nationally produced textbooks for primary education, which are provided to students free of charge. At LS level, SEP provides all schools with approved lists of textbooks for each subject. At UPS due to the wide variety of modalities (and curriculums) as a result of the lack of an effective authority to regulate at this level, there is no homogeneous curriculum or textbook suggestion to guide UPS schools (Santibañez et al., 2005). It is important to highlight that the decentralisation was not planned to reach this micro level and that is why schools and teachers have little autonomy and little power to implement any changes apart from administrative matters.

through the Appropriations Fund No. 3, while the Federal District receives its funds from the budget fund No. 25.

The following subsection will describe the differences in educational outcomes by education level.

4.1.2 Education System's Outcomes

The enrolment rates in the education system vary by age. For example in 2011, while close to 100 percent of 5-12 year-olds were enrolled at school (OECD 2011), participation rates remained low for preschool and secondary age students (using INEE, 2009 data). The enrolment rate starts diminishing for children in LS age (13 year-olds) to 98 percent. Moreover, enrolment rates start to rapidly decline for 14 year-old students, decreasing to 69 percent and 49 percent for 17 year olds.

Considering enrolment in terms of appropriate age, it is worth mentioning that at preschool level the education system has not yet accomplished its aim to enrol all children of preschool age into first grade. At primary level while 90 percent of 6 year-olds are enrolled at grade 1 in primary level, 69 percent of 11 year-olds are enrolled in grade 6. This suggests that even though students of primary age remain at school, failure to progress to the next grade is the main reason why they are not enrolled at the appropriate grade for their age (see Graph 4.1).³⁴

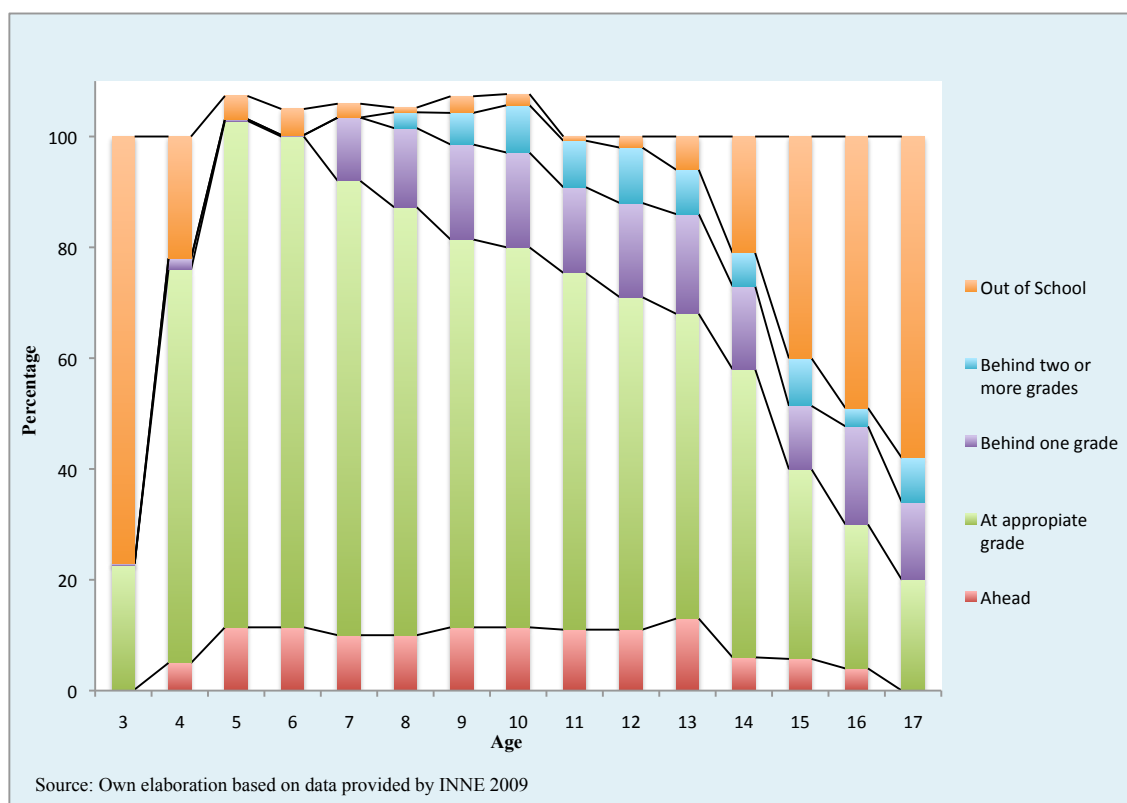
At LS the picture is more dramatic. While 55 percent of 13 year-olds are enrolled in grade 7, only 34 percent of 15 year-olds are in grade 9. This can be explained by the fact that failure rates increase at LS (almost 30 percent of the population at this level are repeaters). In addition, repetition has been accumulated from primary level meaning LS has the highest percentage of students who are two or more years over age.

It can be assumed that repetition, in association with socioeconomic deprivation, acts to push students out of school. Starting with 13 year-olds and those of older secondary age, the out of school rates increase progressively, from 6 percent of 13 year-olds, to 21 percent of 15-year-olds. In other words, around 80 percent of the population that should be finishing LS are enrolled in school, but only 34 percent

³⁴ The data suggests an over representation of the population between 5 to 10 years-old based on the estimations projected by SEP for 2010 and hence why the bars for the population age groups of 5 to 10 in Graph 4.1 exceed 100 percent

are at the appropriate grade. Furthermore, the striking increase in the number of adolescents out of school is more striking at UPS level where 49 percent of 16 year-olds and 52 percent of 17 year-olds are not enrolled in school.

Graph 4.1 Education situation of the school age population (2009)



Other important educational indicators to look at include net enrolment rate (NER), survival, completion at appropriate age and transition. Figure 4.3 shows a summary of the education system's performance by level in each indicator.

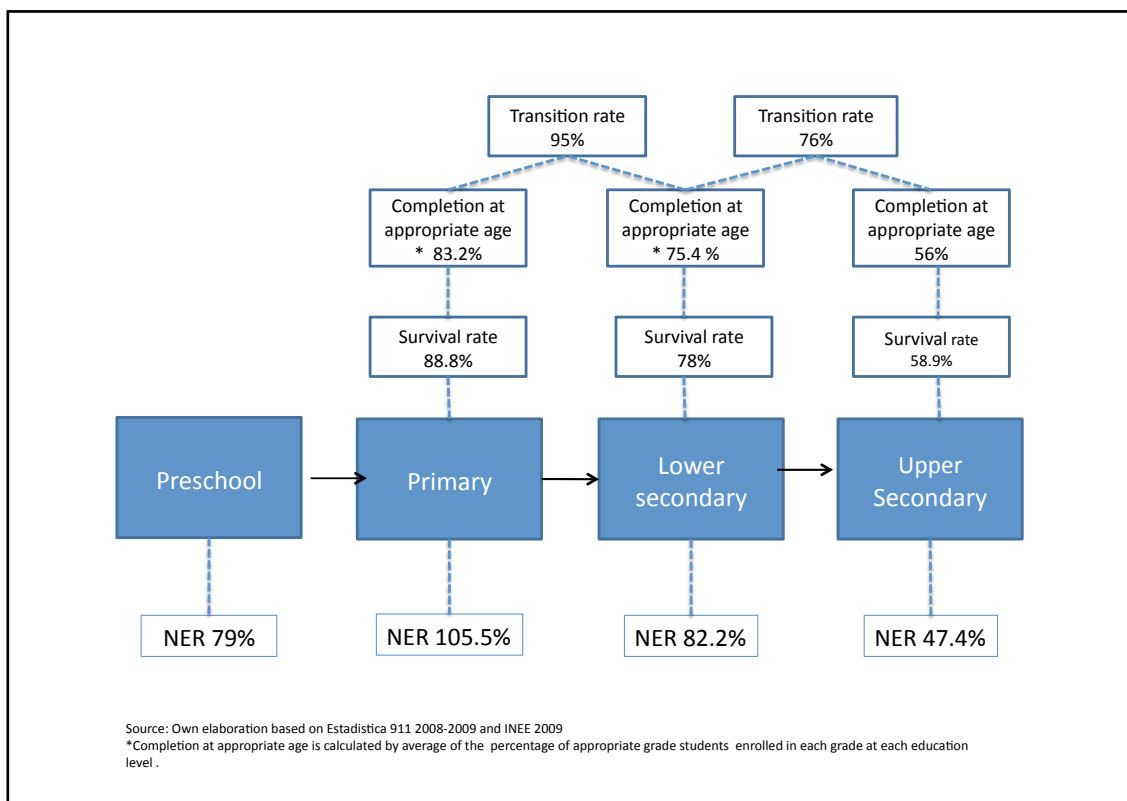
Regarding NER, we can confirm the results shown in Graph 4.1 that at preschool level 20 percent of children between 3 and 5 years old are still not enrolled. At primary level, the education system has accomplished enrolling all children of relevant age, but still has not reached 18 percent of the LS age population. Lastly, at UPS the system is experiencing the challenges of not reaching 53 percent of the relevant population.

Regarding the survival rate we can observe that 12 percent of the students at primary fail to progress to the next grade. This increases at LS to 22 percent of

students, and at UPS rises dramatically, where 41 percent of students fail to survive.

It is worth mentioning that at primary level the main reason why students do not survive their grade rate is repetition, while at secondary level the explanation includes not only failure but drop out, especially at UPS level.

Figure 4.3 Mexican Education System: Main indicators of enrolment



Regarding the transition between levels, the analysis of the probability of making the transition at normative age³⁵ suggests that a student has a 71 percent chance of completing the transition from primary to secondary at the official age. The chance of completing the transition from LS to UPS is 65 percent. In both transitions, girls have on average 5 percent more chance of completing the transition at a normative age, according to information provided by INNE in 2009.

In addition, using enrolment data from 2009 and 2010, we can see that 76 percent of the students enrolled in grade 9 in 2009 completed the transition and are

³⁵ Calculated with information of the school years 2002/2003, 2005/2006 y 2008/2009 provided by INNE 2009

enrolled in grade 10 (UPS). Finally of those that complete primary education at the appropriate age, 95 percent continue studying LS; and from those who complete LS at the appropriate age, 76 percent complete the transition to UPS.

The increased drop out at LS is worrying because, as pointed out by the OECD in 2011, a significant proportion of young Mexicans remain inactive in education or employment. The data suggests that 18 percent of the population between 15 to 19 years old are not in education or employment. For the same age group, women are 3.6 times more likely to not be in education or in employment compared to men of the same age.

Mexico has been trying to reverse the problem of adolescents and youths dropping out of school. Since the 1990s, a series of education reforms have focused on changing the structure and content of the curriculum, as well as making secondary education accessible and universal. Nevertheless, LS still faces several general problems, which will be further discussed in the following section, alongside looking at the opportunities for access to LS.

4.2 Lower Secondary Education

This section focuses on the opportunities to access and stay at the LS level. Despite the improvement in LS school provision discussed previously, the goal of having the total population of 12 to 15 year-olds enrolled at school has not yet been accomplished. The access opportunities to LS are still unequally distributed among States.

To obtain a general picture of the situation of the LS age population, I performed an analysis of progression opportunities by analysing a school generation that started primary level in 2004 and who should be enrolling in LS in 2010. Only 4.6 percent of students that started school in 2004 did not complete primary in 2009.

Therefore, the generation showed a 0.77 chance of completing primary in a normal 6 year cycle.³⁶ Once students got to grade 6, 99 percent of them completed the academic year and were ready to progress to UPS.

³⁶ The probability of the generation to complete primary in 6 years was calculated using the Formatos Estadísticos 911 from SEP in the period 2004-2009.

In the 2010 academic year, 2,229,998 students had a primary certificate and 93 percent of them completed the transition to LS. It is not surprising to find out that the probability of continuing to study LS varies across States. In the Federal District only 1 percent of 15 year-olds did not attend school and from this group, 38 percent have never attended LS. In Chiapas, 30 percent of 15 year-olds are out of school and 65 percent of them were never enrolled in LS.³⁷

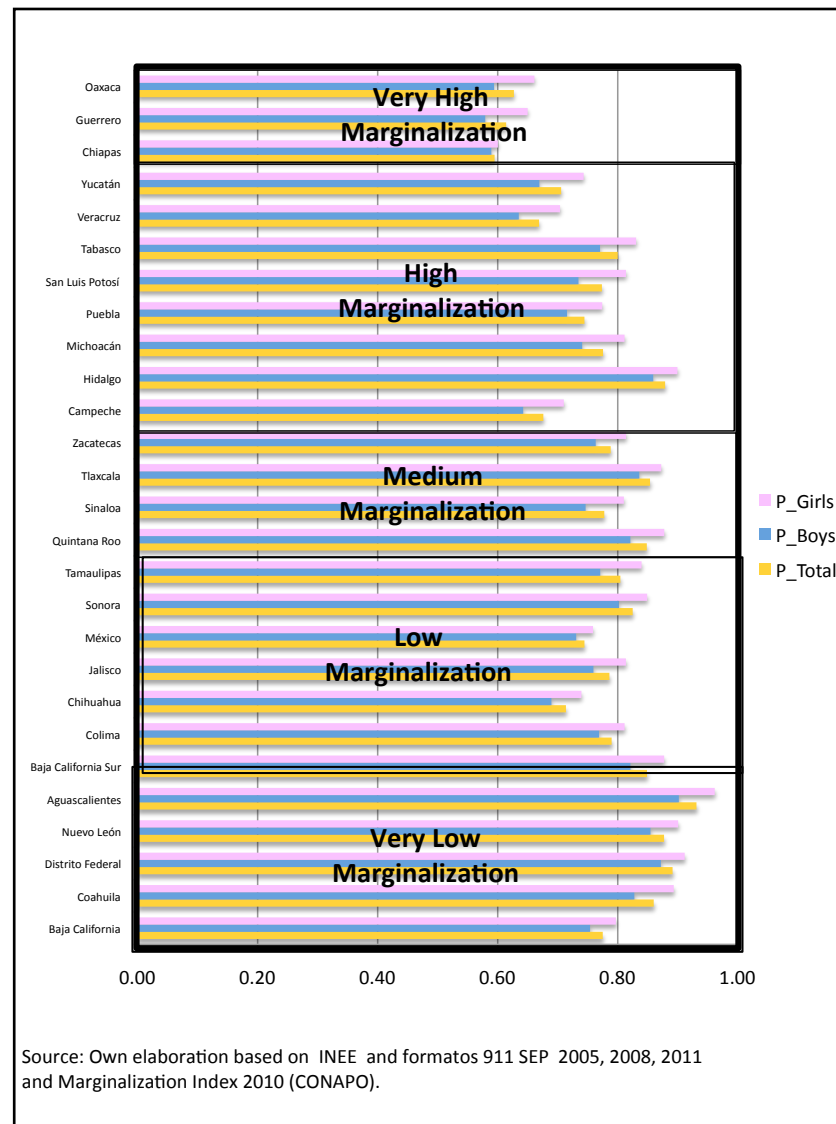
The probability of transition to LS at an appropriate age varies across States and the differences among States are very much related to each State's level of marginalisation³⁸. Graph 4.2 show the probability of continuing to study LS level at the appropriate age, arranged by the States' marginalization index from CONAPO in 2010. As we can see, students in States with very high rates of marginalisation show lower probabilities of reaching LS at the appropriate age in a range of 0.59 to 0.63. Conversely, students in States with very low marginalisation levels show on average a 93 percent chance of continuing studying at the appropriate age (Own calculations based on 911 SEP 2004-2011).

Considering that the lack of LS offer is no longer an issue, students' personal, schooling and context conditions must be the reason for the discrepancies on transition probabilities. These conditions include the fact that in very highly marginalised States the quality of education is well known to be below standard. In particular, States with very high level of marginalisation have been associated with low quality schooling, either because the teachers are not qualified or trained, or because of poor school infrastructure and climate (Reimers, 2000). Poor schooling experiences often means that students do not learn what they are expected, fail or have low educational motivation. These characteristics are associated with repetition, which at primary level is a significant reason for students not completing the transition at the appropriate age.

37 Calculations based on formato 911 (2010/2011) and Censo de Población y Vivienda 2010, Inegi.

38 Marginalisation is seen as a structural phenomenon constructed by multiple dimensions, shapes and intensities of exclusion in the development process (CONAPO, 2011). CONAPO constructed a marginalisation index by municipality and State level in 2010. This takes into consideration the following dimensions: education (illiterate population and population without primary education), dwelling (draining system, electricity, level of overcrowding, drinking water, and housing flooring) population distribution and income.

Graph 4.2 Probability of continuing to study Upper Secondary at appropriate age



The different characteristics of the States in terms of their education system, education quality and the progression opportunities provided are believed to affect who gets to grade 9 with a good chance of making a successful transition to UPS level. In the following section I further explore issues related to UPS level transition.

4.3 Transition to Upper Secondary

The transition to UPS would not be possible if students do not have the opportunity to complete LS and graduate by obtaining the diploma certificate. In Mexico, students can finish grade 9 and still not be able to graduate.³⁹ If students have the opportunity to complete and obtain the LS diploma, their chances of progression through to the next education level are greater (Instituto Nacional para la Evaluación de la Educación 2009a). The appendix provides further details of LS attendance, repetition, dropout and completion rates. In this next section I explore access to UPS level.

4.3.1 Enrolment at Upper secondary

UPS schools have three core options: general, technological and technical professional. It is important to highlight that there are a wide variety of options available and each institution has its own normative framework and curriculum plan but despite this it appears that there are similarities between them, (Instituto Nacional para la Evaluación de la Educación 2011). Interestingly, they do not have any sort of link either at an informal communication level, or through application processes or planning. There are a total of 14,427 UPS schools in Mexico that are expected to ideally enrol 6,710,948 adolescents from the ages of 15 to 17 years old (Data based on Censo de Población y Vivienda 2010).

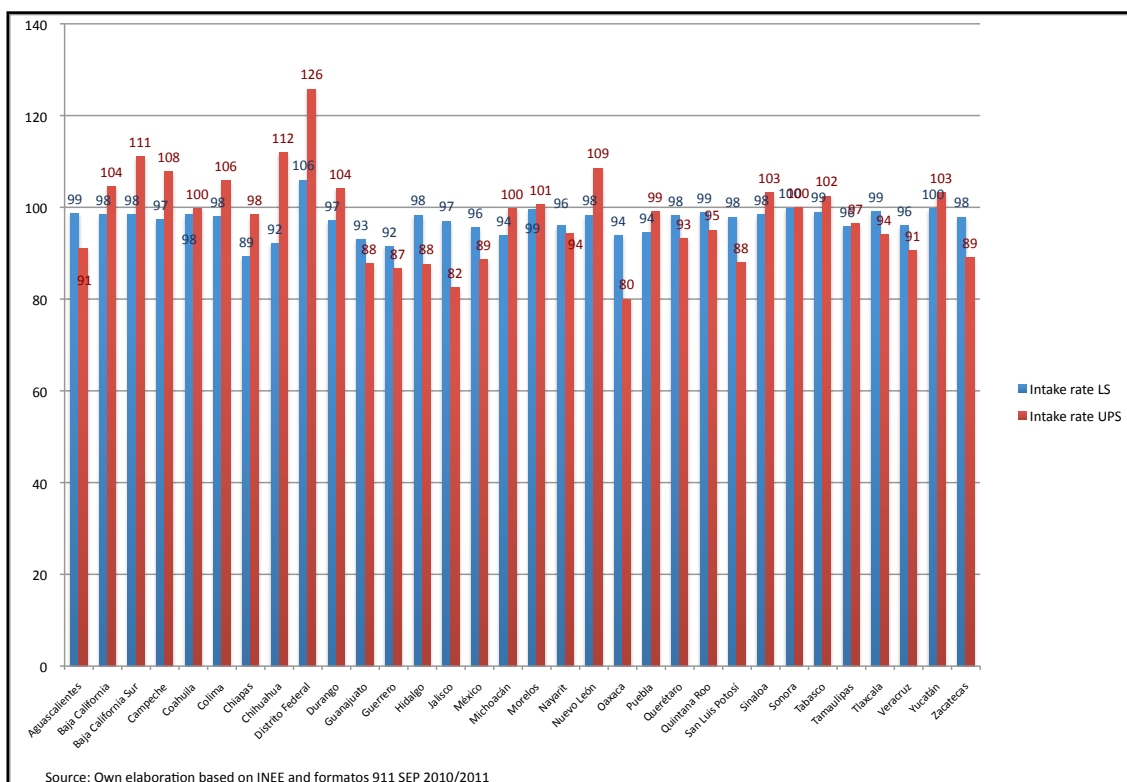
That suggests that each UPS school would need to enrol 465 students, which explains the lack of capacity (UPS schools in Mexico have capacity to enrol on average 320 students) (see appendix for more information on school options at UPS level). If we consider the amount of students that graduated from LS in 2011 (1,775,728 students) each school would had to enrol 123 students in grade 10. However, based on my calculations I estimate that UPS level schools have 100 places for each freshman year. That suggests that if all LS graduates want to continue studying there are not enough places to enrol everyone. This has an impact on the application and selection processes that schools will use and

39 That would depend on whether students obtained all their credits and pass all the subjects. If a student has failed a subject, he or she would not be able to graduate regardless of whether the average grade point is a passing mark. The student will still need to sit an extraordinary exam to pass that grade. Some UPS schools will accept admission applications even when the applicants do not yet hold a LS certificate; nevertheless, they would have a deadline to present the certificate and if they fail in doing so the application will be withdrawn. Other UPS schools may just reject applications of students whose records show a failed subject. In other words, students will need to successfully complete and graduate from LS to apply for a place at UPS.

translates into an increase in the competition for a place in schools with high demand.

Transition rates would be a key measurement of enrolment opportunities at UPS; nevertheless, in the absence of available longitudinal data in Mexico I can only calculate the intake rate. In Graph 4.3 I compare the Net Intake Rate (NIR) at LS and UPS by States, as it show the differences in selection ratios among the education levels. It is important to keep in mind that NIR measures new entrants who are of the official age (12 and 15 years-old at LS and UPS respectively), expressed as a proportion of the relevant age groups. Therefore the results observed measure the proportion of students that have made the transition to LS and UPS at the appropriate age. This measurement is limited as it cannot track how many of them are returning to education after a gap or how many are students repeating the freshmen year.

Graph 4.3 Net Intake Rate (NIR) at LS and UPS by State



The graph above highlights that the NIR at UPS of some States such as: Federal District, Baja California, Baja California Sur, Chihuahua and Nuevo León show

values of over 100 percent. This should be interpreted with care as, more than simply being an overrepresentation of students, the NIR suggests a mobility of students within those States that are considered to have better quality in their education provision. For the rest of the States, the NIR shows better figures at LS than at UPS, which suggests that the population that make it to LS at the appropriate age is greater than at the LS level.

At a national level, it is estimated that 96 of every 100 15 year olds are enrolled at UPS, while LS has the same representation. The lowest NIR at UPS are recorded in Oaxaca (80 percent), Jalisco (82.4 percent) and Guerrero (87 percent) and it is in these states where the largest differences between LS and UPS NIR are found, in addition to Hidalgo and San Luis Potosí.

Furthermore, enrolment rates at LS and UPS levels are dramatically different as Graph 4.4 shows. The national average net enrolment in LS is 82.7 while at UPS is 50.1, a difference of 32 percentage points (significant at 95%). The Federal District is the one that shows the highest enrolment at both levels with over 100 percent attending LS and 72 percent at UPS level.⁴⁰ Guerrero is the State that shows the lowest enrolment rate at both LS and UPS level (71 and 39 percent respectively) with a difference between levels of 44 percentage points.⁴¹

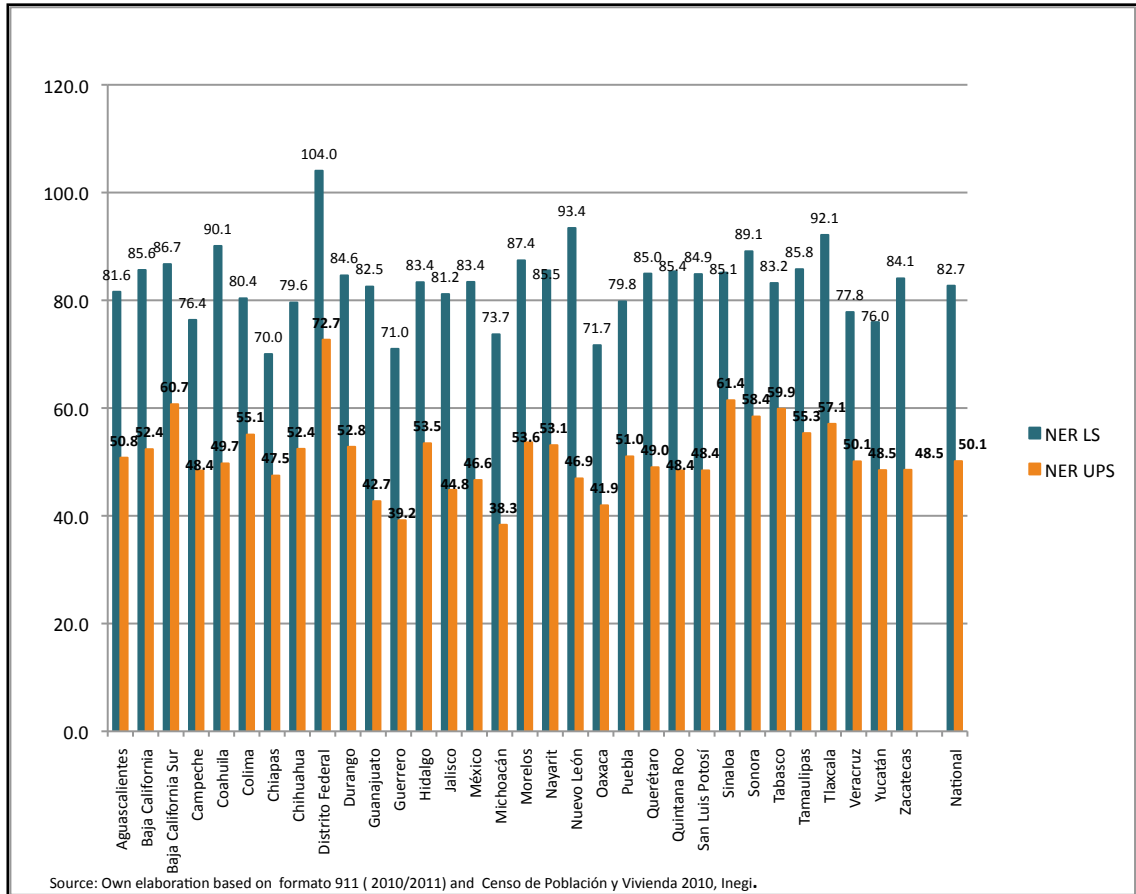
In Graph 4.4 it can be observed that the States with the largest enrolment differences are Michoacán, Guanajuato and Nuevo León (in descending order). They each have very interesting characteristics and no evident similarities. Michoacán shows low enrolment rates at both levels (73.7 and 38.3 at LS and UPS, respectively) with a difference of 48 percentage points between levels. Michoacán, which has a high level of marginalisation, has generally been seen as a State with low education outcomes, therefore low levels of enrolment and a large gap between levels is not surprising. Guanajuato has an enrolment rate of 82 percent at LS and 43 percent at UPS, with a difference of 48 percentage points. Guanajuato is

40 The Federal District has the capacity to enroll 92 percent of the relevant population that completed LS in 2010.

41 For analysis purposes it is relevant to observe the lowest and greatest enrolment differences between LS and UPS level. The States with the lowest enrolment differences between LS and UPS are listed as follows in descending order: Tabasco, Sinaloa and Baja California. In Tabasco State the UPS NER is 60 percent with a difference of 28 percent points more at UPS; in Sinaloa UPS NER is 59 with a difference of 27.8 percent points; in Baja California UPS NER is 61.4 with a difference of 30 percent points. A similarity between all three is that they are States with medium level enrolment with an average of 86 LS NER and 60 percent at UPS; although with different levels of marginalisation

usually located above the mean in education results with medium levels of marginalisation.

Graph 4.4 Net Enrolment Rate (NER) at LS and UPS by States

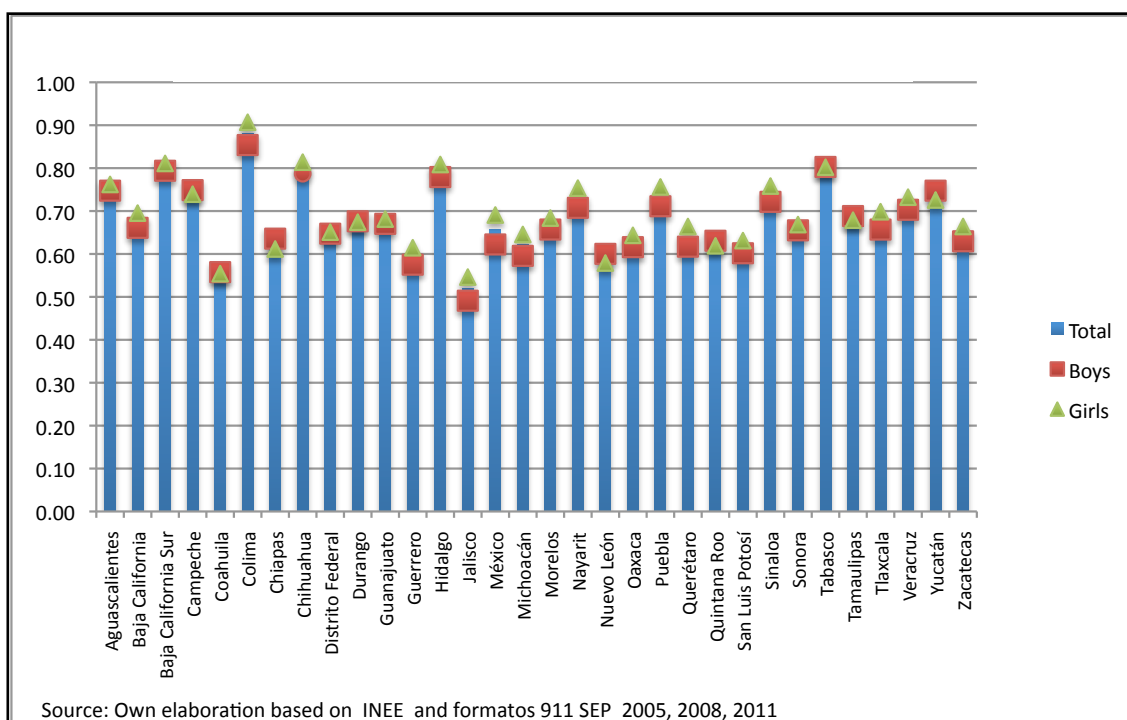


Conversely, Nuevo León has the highest difference between levels (48 percent points), very low levels of marginalisation and in general is located at the top of education indicators. The enrolment at LS is 93.4 percent which positions the State in second place at the national level but at UPS the State only enrolls 47 percent of the relevant population, despite having an infrastructure capacity to enrol 83 percent. Why such different States report such large gaps in enrolment at secondary level is a question that needs more in depth analysis. What the data seems to suggest is that enrolment at UPS is not related to States' development,

education capacity in terms of infrastructure⁴² or education outcomes in basic education.

In regards to the probability of students continuing studying UPS at the appropriate age, Graph 4.5 shows that on average students have 0.66 chance of starting UPS at the age of 16. That is 11 percent less when compared to LS. Girls have 0.68 chance of continuing to study at the appropriate age compared to 0.67 of boys. The gender gap in the probability of starting UPS at the relevant age has narrowed compared to LS, where the difference is 6 percentage points. This fact can make us deduce that once students graduate from LS (when girls shows better results) the chances are similar for boys and girls. Also, it can be inferred that the gap narrows because when a boy manages to stay in education and complete LS he is more likely to continue studying and that girls who finish LS (basic education) have more chances of not continuing their studies.

Graph 4.5 Probability of continue studying Upper Secondary at appropriate age



⁴² Michoacán has the capacity to enroll 86 percent of the population that completed LS in 2010; Guanajuato has the capacity to enroll 81 percent and Nuevo León has the capacity to enroll 85 percent.

The UPS enrolment is also influenced by socioeconomic and cultural conditions. INNE's study in 2011 found out that 24 percent of the population of 15 to 17 year-olds with LS degrees are not enrolled at school (1.2 million people). By socioeconomic condition, the number of adolescents aged between 15 to 17 years old who have LS degree enrolment at UPS is as follows: 64 percent of those live in rural areas, 61 percent come from indigenous households, 60 percent live in poverty and 67 percent live in highly marginalised communities. Therefore only 40 percent of disadvantaged adolescents have the opportunity to enrol at UPS level.

Overall, the data presented confirms that the transition to UPS appears to be an important bottle-neck for students' progression. This bottleneck appears to be related to differences in States marginalisation levels and general characteristics. The results also suggest that gender differences do not appear to be important in defining who makes it to UPS level.

4.4 Final remarks

This chapter described the general characteristics of the Mexican education system in particular of LS and UPS levels. It highlights that despite the Mexican education system accomplishing universal enrolment at a basic education level, there are problems worth noting, as they are relevant to the transition to UPS level.

Moreover as the UPS level has only very recently been incorporated as part of compulsory education, issues of drop out and over age progression in LS acquire more relevance as they define whether UPS school age adolescents will be able to access UPS. It is also relevant to keep in mind the issues of States' inequalities, not only in terms of education outcomes but also in terms of the States' educational capacity to provide UPS services. Therefore it is important to study the differences in the transition processes by State level, as well as how they select students into UPS because it is likely that this would affect students chances to make a successful transition, especially in those States where UPS access and enrolment remain low.

Overall, this chapter sets the scenario of analysis: an education system that is making progress and where the gender gaps are virtually non-existent, but which still struggles to keep young adolescents in education. It is also an education system where students' social inequalities (but also their context inequalities)

seem to define their chances of progression and, where capacity and outcomes are highly unequal among States. In this scenario, the analysis of the education transition to UPS acquires more relevance because it suggests that the processes and mechanisms of selection play a huge role in either hindering or encouraging students' transition to UPS level.

Chapter 5. The transition to upper secondary in Mexico

This chapter explores the process of transition to UPS in Mexico. I map the processes and procedures and provide a descriptive characterisation of the processes used for the transition to UPS in Mexico at State level. Additionally I undertake a political economy analysis of how the transition works across States. The analysis considers the political and economic history that serves as a foundation to the ways the transition operates.

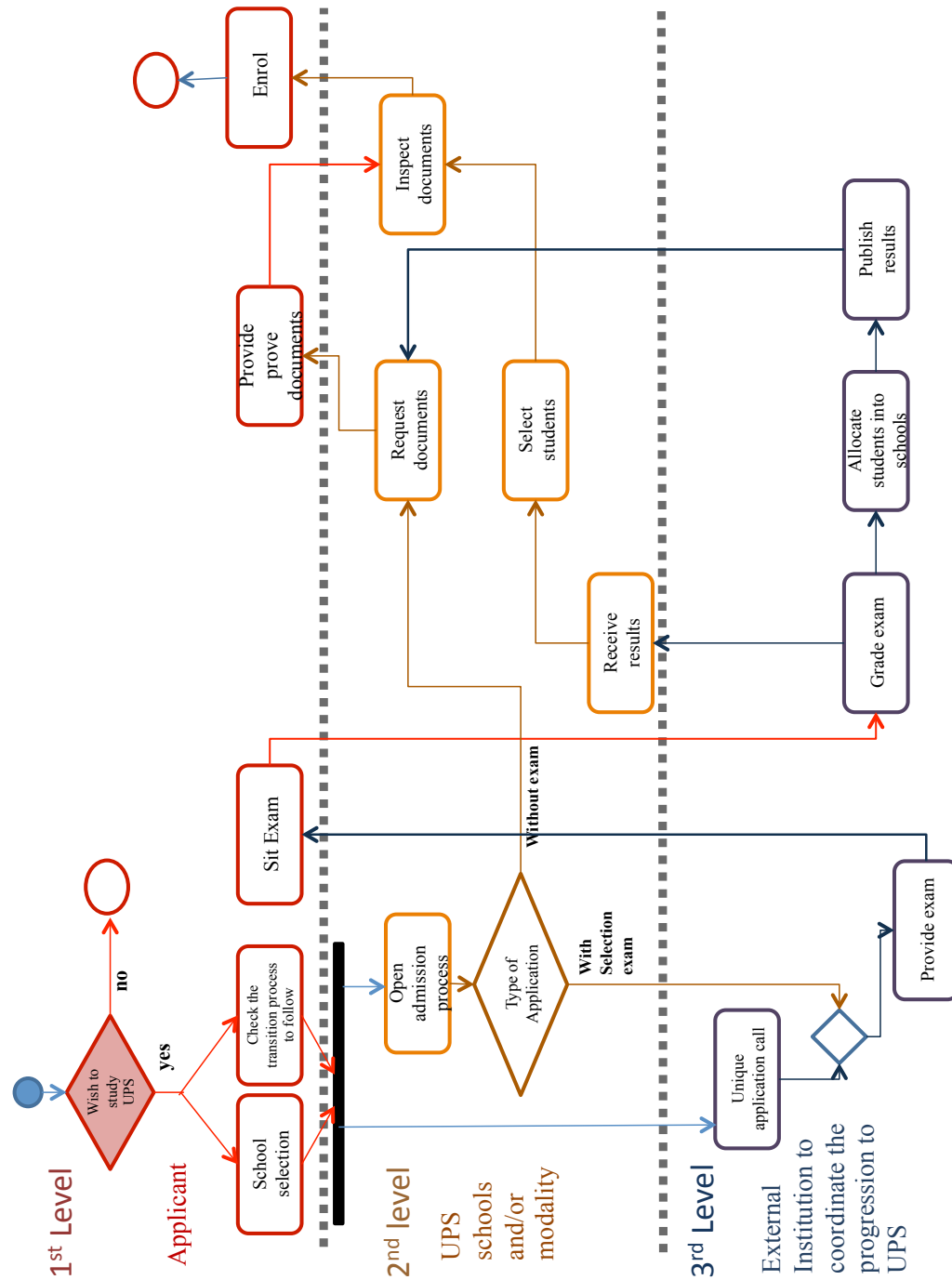
The chapter consists of four sections. In Section 5.1 I present the characterisation of the transition to UPS where I describe the different processes and requirements used by State. Section 5.2 describes the political economy approach. In Section 5.3 I present the political economy analysis of the transition. Finally, a summary of the results and some conclusions are presented in Section 5.4.

5.1 Characterisation of the transition process in Mexico.

In this section I present the characterisation of the transition process to UPS by State in Mexico. The study had as a foundation the assumption that the transition to UPS at national level is not homogeneous because students experience different procedures and requirements depending on where they live (Hernandez 2007). Consequently I perform a mapping of the processes, requirements, accessibility of transition information and costs at each of the 31 States and the Federal District. Firstly, I present a general mapping of the transition to UPS in Mexico. Secondly, I present in more detail what differences in procedures and requirements can be found according to where students live. Finally, I describe the differences that transition processes have in terms of accessibility of transition information and admission costs.

As mentioned in the methodology I conducted a documentary analysis to identify the characteristics of the transition processes to UPS in Mexico. Based on the information collected, the general process of transition to UPS is summarised in Figure 5.1.

Figure 5.1 Flux Process Diagram: Transition Process to UPS in Mexico



Source: Own Elaboration.

Figure 5.1 shows the three levels by which the transition process takes place. Level 1 is the applicant level; level 2 the UPS level, which involves either the UPS school itself or the school modality as a set; and level 3, an external institutional level (although not for all States). This is where an entry examination can be coordinated, and the selection or the allocation of students into schools can be organised. Each level in the diagram of the transition process can be identified by colour: level 1 in red, level 2 in maroon and level 3 in navy blue. Additionally it can be observed that the levels are divided by a dotted grey line. Please note that the full mapping of the construction of such characterisations can be found in the appendix of this chapter.

The first level, at the top of the diagram marked in red, is the applicant level. At this level the decision to continue studying UPS is the starting point. The student will need to choose what kind of school he or she would like to be enrolled in, based on vocational orientation, availability of school in the locality and entry costs. The applicant will then need to consider the admission requirements. In some States the applicant will need to meet minimum admission criteria (hold LS degree). In other States, the applicant will find additional criteria, which involves an entry examination in most cases. In some States this examination can be general for the State; in other words all applicants will sit the same exam. In other States the examination is for certain schools or modalities, therefore not all applicants will sit an exam and not all those who do sit an exam will sit the same one. Therefore from the administration of the admission, applicants find two general types of transition process: States where the criterion is minimal and others with additional admission criteria, such as the use of entry examinations.

The second level in the diagram, marked in maroon, highlights the participation of UPS schools in the transition process. We can observe that they may or may not be in charge of administrating the admission process. The schools that administer the admission process can have minimum or additional admission criteria. The schools that follow minimum admission criteria only request from students proof of LS completion. This proof can be initially just the school transfer and later the LS degree. Some of these schools are selective and accept applicants based on their grades and LS school reference. Other schools, with generally less demand, might

accept all applicants regardless of their performance. The schools with additional admission criteria will use an entry examination. The examination can either be designed by the school itself using mainly diagnostic types of assessment or the schools may hire the services of an external institution to design/manage the examination of applicants. The selection of applicants can be done either by the school or the external institution depending on the terms of the agreement. Finally, regardless of the type of admission criteria, all schools will inspect the documents provided by students and be in charge of the enrolment procedure.

The third level in Figure 5.1 is marked in navy blue. This level shows how an external examination can be part of the transition process, when UPS schools have entry examinations as a means of selection. At this level we find examination institutions that are in charge of designing entry exams for the UPS level. External institutions influence the administration of the admission process; that influence varies according to States and even between schools within States. In some States the institution controls the whole process, from designing the exam, selecting when and where the examinations take place, grading the exam, to the allocation of applicants into schools according to their scores and school availability. In other States the institution provides only the instrument, so it will be in charge of the design of the entry exam and the grading. The results are given to schools for them to make the final decision. The level of influence of the external institution depends on the type of transition the State has chosen or the level of freedom it has given to schools to select the type of admission criteria. In Mexico, we can find States where the entry examination is used but where the procedures can be either homogeneous or standardised and where the procedures are neither homogeneous nor standardised.

Moreover it highlights that there are three institutions that operate as external examination organisations in Mexico. Two are national: the National Centre for Education Evaluation (CENEVAL) and the Basic Knowledge and Skills Exam (EXHCOBA).⁴³ Between them, they share the task of designing the entry exams for UPS. Nevertheless, CENEVAL is the one that has the highest recognition and therefore design and run the greatest amount of examinations. Puebla is the only

⁴³ EXHCOBA exam is designed and administered by the Autonomous University of Baja California

State where the external institution involved is international, the College Board, which designs the exam called PIENSE.

Based on the admission mechanisms, requirements and process of selection, I developed a characterisation of the modes of transition process at State level. I found that four types of transition processes are being used. The first one has minimum criteria for admission, whilst the remaining three have additional admission criteria. The differences between the ones that have additional admission criteria rely on how heterogeneous the procedures are and the extensiveness of the use of entry examinations. The characterisation of the transition process to UPS in Mexico is presented in Figure 5.2 where I use a diagram to illustrate the 4 types of transition processes used.

It is important to highlight that this categorisation of the transition process to UPS relies on the requirements and procedures, as well as the use or lack of use of entry examinations as presented in Figure 2.1. Therefore it considers how homogeneous or heterogeneous the procedures are and the extensiveness of the use of examination and other admission criteria at State level.

The first transition process in blue in Figure 5.2 can be found in States where schools request minimum admission criteria. In these States, schools' main admission requirement is for applicants to show their LS degree and birth certificate. Hence, students will only need to know when the admission process is open at their preferred school and present their proof of documents. Nevertheless, the fact that schools have minimum admission criteria does not mean that students are automatically enrolled. Schools with high demand can reject students if there are no places available. So depending on the school, students may need to register very early on in order to have the chance to get a place.⁴⁴ Other schools might request students' LS transcripts. In these schools, the students are requested to leave their documents for review and the school subsequently publicises the students that have been selected. Students in that sense need to prioritise whether they prefer a school with recognition, a school with a certain subject orientation or just a place in UPS. Consequently to secure enrolment, students might need to

⁴⁴ This is very well documented in the media.

request admission at more than one school. I call this transition process **Minimum Admission Criteria Process (MAC)**. The States that have this type of transition process are:

- Aguascalientes,
- Baja California Sur,
- Campeche,
- Colima
- Chiapas,
- Guerrero, and
- Sinaloa.

The States that use MAC have different level of development. Chiapas and Guerrero are considered to have very high level of marginalisation, Campeche high marginalisation and Sinaloa medium level of marginalisation while Aguascalientes, Baja California Sur, Colima have very low level of marginalisation. It is relevant to mention there were not found clear similarities between States to suggest reasons why this type of transition system has been chosen by these States.

The States that use MAC in general showed to provide little accessibility of information to students or the population in general. In other words the vast majority of UPS schools that use MAC were found not to publicise when the admission call is open, neither what are the requirements for the application, nor the selection criterion. As a consequence at the States that use MAC the media, especially local newspapers, had become active to publicise admission periods. Nevertheless, the information available regards mainly to admission at the schools in higher demand; therefore, students are expected to do much of the research on their own if they are willing to continue studying UPS level.

The application fee at States that use MAC varies from 0 to 120 pesos (0-9 USD). As expected the cost of admission in MAC is the lowest in Mexico because the cost consists only on administration fees that schools may have. The admission cost varies on one hand on the prestige of the UPS schools. In that way, schools with higher prestige tend to have higher admission fees, but this ones are paid only when the student has been granted formal admission. For this reason MAC is the

least expensive transition process in Mexico as students will pay only one fee and this is paid once a place in UPS is secured.

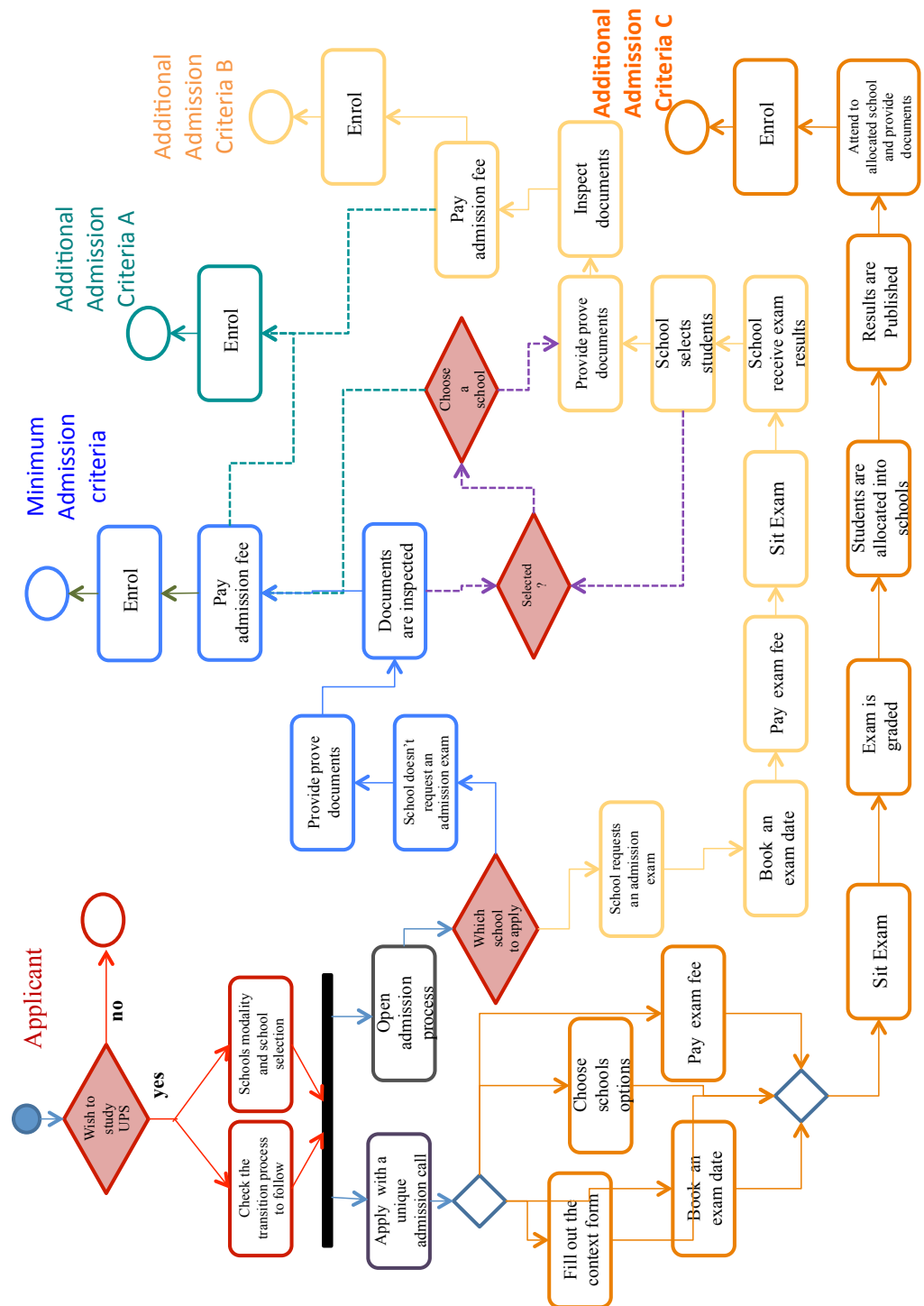
Moreover, the differences in transition/admission fees between the States that use MAC are very much related to the level of development and education structure in the State. For example in Chiapas the cost of transition for students is nil while in Baja California Sur is 200MX pesos (16USD)⁴⁵. It appears that the fees relate to the cost of living and education characteristics (see appendix of chapter 6 for further reference).

In regards to the States that have additional admission criteria, three different types of processes can be found (A, B, or C as seen on Figure 5.2). The processes have been differentiated depending on the extensiveness of the use of examinations, as well as the heterogeneity of their procedures. States where schools decide whether to have an entry examination or not (called criteria A); states where school modalities have entry examinations (criteria B); and finally, States that have a standardised and homogeneous entry examinations (criteria C).

The additional admission criteria process A is shown in teal in Figure 5.2. This transition process comprises of States where students may find schools that have minimum admission criteria and schools that request an entry exam as a means of selection. In those latter schools, the entry exam may or may not be designed by the school. When the school designs its own examination this is usually, although not always, a diagnostic assessment. The schools that do not design their own entry examination will hire an external examination institution.

⁴⁵ The standard deviation in the cost for MAC States is 70MX pesos (5.6USD)

Figure 5.2 Characterisation of the transition process to Upper Secondary in Mexico



Source: Own Elaboration.

With the additional admission criteria process A, the types of entry examination that external institutions use are mainly summative assessments, although a small proportion can be synoptic (those designed by EXCOHBA). In these States, students choose their school of preference and enquire about the application procedure that has to be followed. Students are very likely to apply to different schools to secure a place in UPS. It is important to highlight that the schools that have higher demand or prestige are the ones that are more likely to have entry examination admission criteria. I will call this transition process **Mixed Admission Criteria Process (MixAC)**, as in the State UPS schools have both minimum and additional admission criteria. The States that have this transition process are:

- Coahuila,
- Durango,
- Guanajuato,
- Hidalgo,
- Jalisco, and
- Tamaulipas.

The States that use MixAC also have different level of development. Coahuila has very low level of marginalisation; Tamaulipas and Jalisco low, while Hidalgo has high level of marginalisation. With this regard, it was not found a relationship between States' marginalisation and the type of transition process chosen.

The MixAC States offer a mixture of low to medium accessibility to information. Being Coahuila and Durango the States that offer low accessibility of information to students regarding the transition and admission procedures. In other words, in those two States students need to do a great deal of research on the schools to know which ones require examinations and which ones do not. Particularly in Coahuila and Durango the vast majority of schools do not have a website to consult such information or if they do there is no relevant information about the admission to UPS at all. The rest of the States that use MixAC were categorised to offer medium accessibility because at least 60 percent of the UPS schools appeared to offer information on whether they request an exam and the procedures for admission.

MixAC is the transition process that appeared to be the most expensive to students. Despite the transition cost in MixAC is on average 288MX pesos (23USD) with a standard deviation of 137MX pesos (11USD) students were found to pay the cost of entry examination to at least 2 schools to maximise their chances to obtain a place. This characteristic is the main difference with MAC as students in MixAC States would pay transition cost without having secured a place at UPS. Tamaulipas and Guanajuato are the States with the lowest and highest transition costs of the block (179 and 520 MX pesos, respectively). The difference can be attributed to the availability of schools modalities. It is important to highlight that in MixAC the cost of transition is determined by the number of schools that have additional admission criteria. In other words, the transition cost depends on the cost of admission at schools with minimum admission criteria plus the cost at those schools that have additional criteria. Having said that, the existence of more options of COBACH modality (which use selection entry examinations) in Guanajuato in relation to the total amount of schools in the State made the average cost higher when compared to any of the other State that use this type of transition process.

Lastly it is relevant to mention that MixAC schools that require entry examinations use mainly EXANI I from CENEVAL. However as mentioned earlier there would be differences in the type of exam used at schools as there is no unification or standardisation of transition procedures neither on the mean of selection. Furthermore, at two States, Guanajuato and Jalisco, some schools are using different examinations to EXANI I. In these two States some schools are using EXCOBA and PIENSE entry examinations instead. It is believed that at these States perhaps by mean of a different strong political history affiliation to the party in power (PRI), schools are more open to use different types of entry examinations.

As shown in yellow in Figure 5.2 the additional admission criteria in context B comprise States where schools have entry examinations. The entry examination is general in the sense that all students who complete the application process will need to sit an exam. Although it is possible to find few school that may not request examinations. Nevertheless, not all schools will have the same exam. Additionally,

the same school modalities⁴⁶ may have similar (although not identical) exams. A particular feature of this transition process is that students would need to sit an exam at each school they are applying to, even if they are in the same modality. For example, if a student applies to several schools of the same modality, he or she will need to sit an entry exam at each school. It would be coincidence if the entry examination turns out to be exactly the same, as schools do not have any links or communication between them. The entry examinations used in this context are mainly summative assessments, except in Puebla where synoptic assessment might be used.. I call this transition process **School-based Entry Examination Process (SBEE)**. The States that have this transition process are:

- Michoacán,
- Morelos,
- Nayarit,
- Nuevo León,
- Oaxaca,
- Puebla,
- Querétaro,
- San Luis Potosí, and
- Zacatecas.

SBEE is compounded by States that have all levels of development. Very high marginalisation States such as Oaxaca; high level of marginalisation States such as Michoacán, Puebla and San Luis Potosí; medium marginalisation level States like: Nayarit, Querétaro and Zacatecas; and finally low marginalisation level as Morelos and very low level of marginalisation with Nuevo León. For that reason it is difficult to find similitudes that explain why these States have chosen SBEE as transition process to UPS level.

The States that have a SBEE process offer generally medium accessibility of information, which means that some information can be found at the ministry's website but mainly the way students have to identify what application process to follow is to search at each UPS school directly or by particular advertisements that schools may have in the local media. The only exemptions of SBEE are Puebla

⁴⁶ A school modality in Mexico comprise schools of the same type of curriculum.

where the accessibility of information is high, as well as Morelos and Oaxaca where the accessibility of information is low.

In SBEE the average transition cost is 387MX pesos (31USD) with a standard deviation of 209MX pesos (17USD). Here students are asked to pay an administration fee at each school plus the cost of the selection exam. What makes this transition process less expensive than MixAC is that was found that most schools would refund the administration fee to the student when not selected. Therefore the only cost to cover is the actual selection exam fee. This fee is of between 150 to 300 pesos (12-24 USD) depending on the school, and is paid directly to the school regardless of whether the examination is administrated by an external assessment institution or designed by the school itself.

Most of SBEE's States use EXANI I as mean of selection. The only exemptions are Nayarit and Querétaro where some schools use EXHCOBA. This is believed to relate to the strong PAN party affiliation of these States while in Puebla some schools are using PIENSE (which has no evident explanation).

The additional admission criteria in context C is shown in orange in Figure 5.2. This transition process comprises of States where school modalities have entry examinations and such examinations are general and standardised for all schools in each State. The main characteristic of this transition process is that the process is controlled by an external assessment institution. In other words, the external assessment institution not only designs the examination but is in charge of the admission call, administrates student applications, selects the schools where the examination will take place, implements the examination day, grades the entry exams and allocates students into schools. It is only in this transition process that students pay the entry examination cost directly to the external examination institution. It is relevant that in this transition process there is a single admission call, students will sit only one exam (although they will select different school options) and, based on their performance, will get a place at a UPS school. The type of examination used is a summative assessment. I call this transition process **Standardised Entry Examination Process (SEE)**. The states that have this kind of transition process are:

- Baja California
- Chihuahua,
- Federal District,
- México,
- Quintana Roo,
- Sonora,
- Tabasco,
- Tlaxcala,
- Veracruz, and
- Yucatán.

Like the rest of the transition processes SEE is compounded by States with different levels of development. None of the States that use SEE have very high level of marginalisation, although Veracruz, Tabasco and Yucatan have high level of marginalisation. Tlaxcala is the only State with medium level of marginalisation while Chihuahua, Quintana Roo, México and Sonora have low marginalisation and Baja California and Distrito Federal very low level of marginalisation. Therefore no inference can be made regarding the development of the States and the type of transition selected

Regarding accessibility of information offered to students, in SEE the application process is widely advertised in newspapers at all States. Information is found on deadlines, how to apply, procedure, requirements, costs, where the exam will take place, and selection criteria in school websites. Moreover the results are published at local newspapers. It is through the written media that students can consult whether they pass the exam and in which school they have been allocated. Therefore most of the States were categorised to provide high accessibility of information. The only exemptions are: Tlaxcala with medium and Chihuahua with low accessibility level. The later case was interesting as nor the media neither the schools have relevant information on transition procedures.

In SEE the average transition cost is 360MX pesos (29USD) with a standard deviation of 255MX pesos (20USD) which is payable to the external examination institution on charge of the whole transition process. That cost includes in most States the admission cost (for the school where the student is allocated) and the

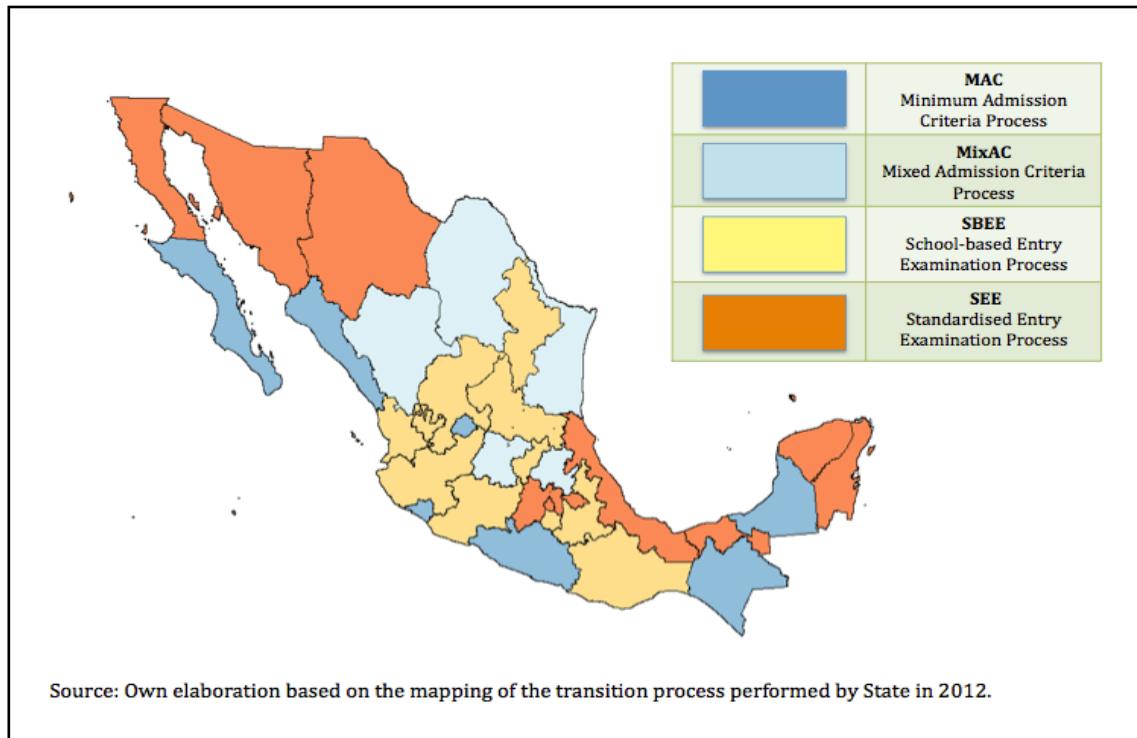
exam fee. However at some schools students may be asked to pay an additional admission fee at the school but that fee could not be consulted online.

Lastly, the external examination institution that is on charge of the transition process at SEE States is mostly CENEVAL. The only exemption are Baja California that has created its own examination institution EXHCOBA and Tabasco that has and State exam.

Figure 5.3 summarises and illustrates how the different transition processes are distributed by State level in Mexico. The distribution of transition processes among States is as follows: 22 percent of States have a MAC process, 19 percent MixAC, 28 percent SBEE and 31 percent SEE. Upon observing the distribution of transition processes, we can see that the process categories are distributed among all regions of the territory, except in the case of the MixAC, which is not present in the south and southwest. Nevertheless, there is no evident geographical or regional associations between particular transition processes.

It is relevant to note that the transition process has recently changed in two States. In Colima, it changed in 2006 from MAC to MixAC and in Tabasco it changed in 2008 from MixAC to SEE. Additionally, Campeche, which up to 2012 used MAC, is likely to change because in the 2013 academic year the school modality, Colegio de Bachilleres (COBACH), has started using selection exams in their application process. This suggests that Campeche is likely to change its transition process to MixAC.

Figure 5.3 Transition To Upper Secondary in Mexico: Process Characterisation



The analysis of how the transition process has evolved at State level is beyond the scope of this thesis. Nevertheless the findings suggests that the transition processes evolve from having minimum admission criteria to having additional admission criteria, starting with the introduction of entry examinations in some areas. Furthermore, States that already have additional admission criteria, but where these are not used in an organised or extensive way, are more likely to evolve to use SEE transition processes by unifying the use of entry examinations.

Other aspects of the transition were reviewed and analysed in light of the characterisation performed such as: students' accessibility of information on the application process, the transition costs and the availability of school options.⁴⁷

Based on my documentary analysis I characterised the accessibility of information that students have on the transition process by State level. I define three levels of access to information: high, medium and low. States with high accessibility access

⁴⁷ For more detail information please refer to the appendix of this chapter.

constitute entities where the ministry of education publicises information on the process of transition to UPS. This information clearly specifies the procedure for application, school options, costs and deadlines. This makes the process transparent and easy to understand for students. States that have medium accessibility are those where the ministry does not clearly specify the procedures to be followed but the information is advertised and available either in the local media or on the schools own websites. Finally, States that offer low access are those where neither the education ministries nor the local media or school websites provide information on the application that is accessible to students.⁴⁸

Regarding the accessibility of information, States that use SEE processes tend to have more information on the mode of application, procedure, cost, and deadlines. This only has the exceptions of Tlaxcala with medium and Chihuahua, which has low accessibility of information. Moreover, the States that use SBEE processes show in general medium accessibility of information, which means that some information can be found at the ministry's website but the main way students identify what application process to follow is to search online for UPS schools directly or find out about them via advertisements that schools may have in the local media. The only exemptions of SBEE are Puebla where the accessibility of information is high, as well as Morelos and Oaxaca where the accessibility of information is low. Furthermore, the MixAC States have a mixture of medium and low access to information, while MAC States have mostly low accessibility (except Aguascalientes with high and Colima with medium). Consequently, it can be inferred that within States that have entry examinations, the more homogeneous the procedures are, the more likely it is that the education ministry at the State will participate in making public the procedures of application. This is related to the level of participation and involvement in unifying the process. Conversely in the States that do not use entry examination, despite having homogeneous procedures, the accessibility of information does not seem to be a priority for the States' education ministries.

48 . For these States in particular, the research to identify the transition process was time consuming and complicated and that meant additional sources needed to be consulted.

Regarding the transition cost, I reviewed the amounts that students may have to pay either to schools and or external examination institutions by State (see appendix for more information). I calculated the cost by reviewing the admission fees by school modality, as well as the entry examination fee to the State, where applicable. I present the average cost by weighting the cost by the amount of schools of each modality in the State. It is noteworthy to highlight that the cost is the calculation of the amount students will pay when they apply just once. This fact is important to keep in consideration because, as mentioned before, in some transition contexts students may need to apply to more than one school to have a realistic chance of getting a place in UPS, therefore the costs are likely to be higher.

The cost of the transition is related to the kinds of transition process that each State uses. The average cost of transition of States with MAC transition process is 134MX pesos (10USD). As expected, the cost of completing the transition to UPS at States with MAC is the lowest, as the cost consists only on administration fees that schools may charge. The differences between the States with this kind of admission process are very much related to the level of development and education structure in the State. For example in Chiapas the cost of transition for students is nil while in Baja California Sur it is 200MX pesos (16USD).⁴⁹ It appears that the fees relate to the cost of living and educational characteristics (see appendix for further reference).

In MixAC the transition cost is 288MX pesos (23USD) with a standard deviation of 137MX pesos (11USD). Tamaulipas and Guanajuato are the States with the lowest and highest transition costs in this group (179 and 520 MX pesos, respectively). The difference can be attributed to the availability of schools' modalities. It is important to highlight that in MixAC the cost of transition is determined by the number of schools that have additional admission criteria. In other words, the transition cost depends on the cost of admission at schools with minimum admission criteria, plus the cost at those schools that have addition criteria. Having said that, the existence of more options within the COBACH modality (which have selection entry examination) in Guanajuato, in relation to the total amount of

⁴⁹ The standard deviation in the cost for MAC States is 70MX pesos (5.6USD)

schools in the State, made the average cost higher when compared to any of the other states that have this type of transition process.

In SBEE the transition cost is 387MX pesos (31USD) with a standard deviation of 209MX pesos (17USD). Jalisco and San Luis Potosí are the States that represent the lowest and the highest transition costs in this group respectively. Finally, in SEE the transition cost is 360MX pesos (29USD) with a standard deviation of 255MX pesos (20USD).

This section illustrates that 4 types of transition process to UPS can be found in Mexico. The differences between them relate to how homogeneous the procedures are, whether they use entry examinations and if so, the extensiveness of their use. These differences have also been found to relate to differences in the accessibility of information and the transition costs. However, the mapping does not show that there is a geographical pattern that explains the different processes used. Therefore a more in-depth analysis is required to understand the factors that affect the observed transition processes differences. The following section presents the political economy approach used for that purpose.

5.2 The political economy approach to the analysis of the transition process

To analyse the process of transition to UPS a political economy approach has been chosen recognising that the economy of education, context, political dynamics and the motivations of actors involved are key issues in education analysis (Novelli 2011; Santibañez 2008). The analysis uses a political economy approach as a method. Therefore, this section introduces the political economy approaches to be used, which are problem-driven and conflict analysis.

Political economy analysis aims to understand collective action, particularly, how individual preferences are moulded and channelled by institutions to produce a collective action (GSDRC 2010; Whiteley 1980). Therefore, of special interest is the distribution of power and wealth between different groups and individuals and the process that creates, sustains and transforms those relationships over time (GSDRC 2010; Overseas Development Institute. 2003). The political economy analysis proposed here assumes that political choices, institutional structures and forms of

governance influence the choices made (Adam and Dercon 2009). Therefore, the political history of the education system in Mexico, the dynamics between the actors involved, the economic situation of each State's education system, as well as the characteristics of the demand for UPS, explain the way the transition process works at State level.

Political economy analysis has been used for the study of electoral processes and outcomes, the design of macroeconomic policies, political decision-making, analysis of conflict affected states and humanitarian and political crises, among many other topics (Adam and Dercon 2009; Novelli 2011; Overseas Development Institute. 2003; Whiteley 1980). Recently, international organisations have been actively developing and using political economy analyses for the implementation of different projects. Nevertheless, there is no established framework to perform a political economy analysis (Overseas Development Institute. 2003). What the political economy analysis can offer are approaches that can be used and adapted to particular phenomena (Overseas Development Institute. 2003).

The most common approaches used are: the commodity chain analysis⁵⁰, livelihood-analysis⁵¹, power analysis⁵², drivers of change⁵³, strategic corruption and governance analysis⁵⁴, poverty and social impact analysis⁵⁵, conflict analysis⁵⁶ approach and problem-driven political economy analysis. However, not all of these

50 The commodity chain analysis uses a technique that identifies power relationships, governance structures and exchange relationships within commercial networks, from primary production through consumption and from local up to international levels (Raikes et al., 2000).

51 The livelihood analysis takes into consideration the total of economic, political, social and cultural factors affecting people's lives and livelihoods, from the national to the international level. This approach has been more commonly used as it addresses the conventional limitation of the type of research where a phenomenon is observed from "top down".

52 The power analysis focuses on the Macro level. The main objective is to understand the links between human rights, democracy and poverty reduction. It also performs an analysis of the interrelationships between formal versus informal institutions and actors.

53 The drivers of change analysis focus on the macro level, but its main objective is to enquire about the structural and institutional factors that support or impede poverty reduction.

54 The strategic corruption and governance analysis combines the Macro level with the local and sector level. The purpose is to review the informal and formal aspects of governance, as well as state-society relations.

55 The poverty and social impact analysis focuses on the Macro, Meso and Micro levels. It evaluates specific reforms and the distributional impact of policy interventions, with particular interest on the poor and vulnerable.

56 . This approach sees conflict as the effect of opposing wishes or needs between groups competing for similar resources or desired outcomes. This approach tries to disentangle the causes and effects of conflict from wider processes that exist in societies (Riquelme, 2004)

approaches are useful in the analysis of the transition process focused on in this research.

A literature review of all the approaches would be irrelevant; nevertheless for clarity I will state the main reason to disregard each approach. I cannot use commodity chain analysis, as the transition is not a good that is exchangeable. I cannot use livelihood analysis because I do not focus on how the transition process is experienced by students. Furthermore, I do not use power analysis, as I am not interested in the power relationships that the transition process generates, but on the contrary I am concerned about how power defines the transition process that is used by each State. I do not use drivers of change or strategic corruption and governance analysis because the factors that those approaches consider are out of the scope of this investigation. Finally, I do not use conflict analysis because I do not see the transition process as a conflict in itself. Nor do I see the transition as a conflict that occurs when the different interests interact in the public arena.

Conversely the problem-driven political economy analysis approach was selected as it contributes to my analysis as follows. Problem-driven political economy analysis tends to be retrospective as it aims to collect the necessary information required to understand the current situation of certain issues, where a specific problem forms the centre of the analysis. The enquiry is developed at three levels of action: micro (actor), meso (formal and informal institutions), and macro (the structure). Related to the micro level, the problem-driven political economy analysis identifies the actors that play an important role in the development of the issue, their interrelationship and power relationship and their interest in the pursuit of certain outcomes. This approach also investigates the meso level, which is the institutional background of the situation, seen as norms, rules and formal regulations. At a macro level the problem-driven political economy analysis explores how the context structure builds up the relationships and affects the way the problem has been raised and maintained over time. Moreover, this type of analysis can give some prediction about how actors and institutions will react to proposed changes and how those changes may affect the problem.

For the reasons mentioned above, the problem-driven political economy approach provides a good guidance to answer the following question: What are the

underlying factors that affect the different transition processes to UPS level used in different States in Mexico? In my case, the “problem”, or the centre of analysis, is the differences in the transition processes used at State level in Mexico.

Furthermore, the problem driven approach provides methodology to identify and detangle what in the literature calls structural factors, institutions and actors/agents.⁵⁷ Structural factors are long-term factors that define the terrain in which actors operate (Novelli 2011), as well as defining the way the context operates and the interactions that occur. For political economy, institutions can be formal or informal. Formal institutions are well defined and recognised operationalisations of what behaviour is expected such as laws, constitutions and agreements. Institutions can also be informal, when they are less codified modes of behaviour such as routines and habits.

Finally, the political economy approach puts special emphasis on understanding the historical effect of the relationships between actors. In other words, the analysis of the transition processes to UPS in Mexico has to consider the development of relationships over time: how institutions have evolved throughout history and the effect that this has on the context in which political actors make decisions and conflicts or problems are triggered (Riquelme, 2004).

In the following subsection I present in more practical terms the framework of analysis based on the problem driven approach.

5.2.1 Framework for the analysis of the transition process

This subsection introduces the framework of analysis to be used for the transition process. It is important to highlight that the proposed analysis is based on the view that students’ decisions to continue studying UPS and of the school selected for that purpose do not correspond only to what economic theory calls “rational calculation” of the benefits of upper secondary education or the opportunity cost of staying in education. Neither is that decision based, from a more political point of view, only on the way the procedure of application is structured or the political

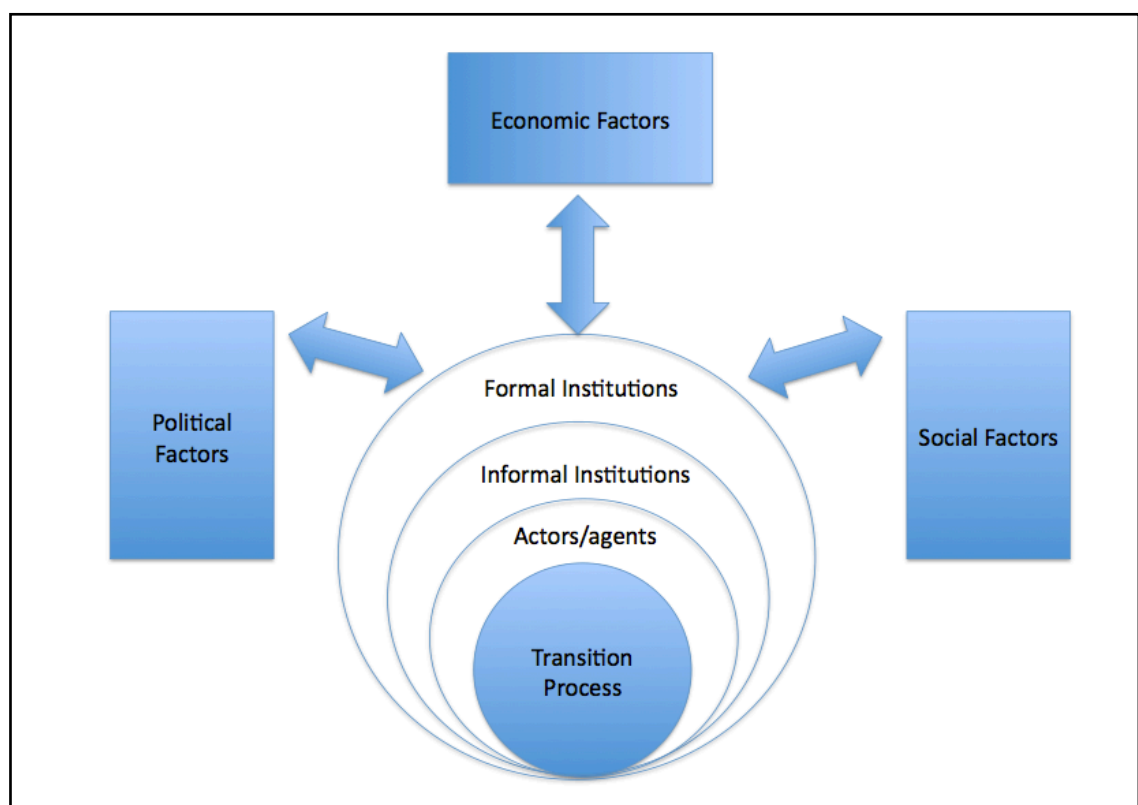
57 In the political economy literature the concept of agent is commonly used; nevertheless in NIT the individual that interact within institution is called actor to highlight that the individual acts, moves, and puts in action. Therefore I will refer from now to actor(s) to any individual actor that interacts as part of the transition system to UPS in Mexico.

environment in the State. Instead, students' decisions should be seen as the result of the combination of the factors mentioned.

Additionally I view the transition process in each State, not only as the result of the structure of the political and education system, nor simply a result of the economic situation in each State. Instead, I observe these factors and analyse their relationship with interactions between actors, formal and informal institutions within a political, economic, and social context throughout history.

The framework presented in Figure 5.4 show how circumscribed the transition process is between actors and informal and formal institutions but at the same time all get feedback from these relationships. That feedback may affect the political relationships as a whole and be a reason for change over time (see Figure 5.4).

Figure 5.4 Framework for the analysis of the transition process



Source: Own elaboration based (Riquelme, 2004 and Novelli, 2011)

In terms of economic factors, this framework highlights the economic development within the State, demand for education, education infrastructure, the efficiency of the State's education ministry and UPS market behaviour. Similar to the political factors, the economic variables are expected to have double flow as seen in Figure 5.4. The feedback historically obtained from the interrelationships between institutions (formal and informal) and actors may affect the current situation of the economic factors as a whole.

Furthermore, the social factors to be considered are the social composition at State level and social development, including levels of education and levels of influence of media. These characteristics are also expected to have a double flow relation with the focus of analysis.

The formal institutions in this context are current education regulations and laws. These are the National Constitution (the 3rd article that focus on education), the LSE that regulates education provision, the ANMEB that initiated the decentralisation of education and the recent UPS reform (2011), where the UPS has been made compulsory and certain changes have been introduced. The informal institutions to be considered are the set of rules, routines and habits that are intrinsic in the transition process at State level. For that matter, I review how the transition process is performed at State level.

The actors that have an important role in the transition process from LS and UPS in Mexico are identified by the analysis of how the transition process is performed at State level. It is of great importance to value the level of influence and power they have in the process. We can identify the following main actors: The Ministry of Education at Federal level (SEP), State ministries of education, Sindicato Nacional de Trabajadores de la Educación (National Teachers Unions, SNTE), teachers union sections in the States, examination institutions, UPS schools and modalities, media, applicants and their families. Please refer to the appendix of the chapter for further information on the methodology used to perform the analysis and a description of how the decentralisation process in Mexico is believed to have affected local education characteristics and the processes of transition to UPS.

5.3 The Political economy analysis of the transition to upper secondary in Mexico

In this section, I use the framework of analysis presented in Figure 5.4 to investigate the political economy of the transition process to UPS in Mexico. First, I identify and describe the actors that are involved in the transition process, according to their level of influence. It is important to keep in mind that I refer as actors to any individual that interacts (has action) within the transition process. Secondly, I analyse the actors' interrelationships. Finally, the political economy of the transition is presented by deepening the analysis to how those interrelationships and interactions are affected by social, political and economical factors.

5.3.1 Actors involved in the transition process

The actors are introduced from macro to micro level according to their level of influence, as suggested by the problem-driven political economy approach. At the macro level, the key actors are: SEP, the federal Sub-Ministry of Upper Secondary (SEM), the Ministries of Education at the States and the external examination institutions. The teacher unions and the media are presented at meso level institutions, as they are a liaison between the macro and the micro level actors. Finally, at the micro level can be found companies that support students to prepare for entry examinations, the UPS school modalities and schools, teachers, students and their families.

Table 5.1 Actors involved in the process of transition to Secondary in Mexico

Macro Level	SEP-SEM
	SEP in the States
	External examination Institutions
Meso Level	Teacher Unions
	Media (National and State level)
Micro Level	Private assessment preparation companies
	School modalities/Schools
	Teachers
	Students and their Families

5.3.1.1 Macro Level actors involved in the transition process

The actors involved at macro level in the transition are: SEP, and its sub-ministry of UPS; the State's ministries of education and its UPS offices when available and the external examination institutions. I describe each actor below.

SEP and the Sub-ministry of UPS

SEP is in charge of the planning, implementation and assessment of the education system and its policies at a compulsory level, as well as organising teacher training. SEP is divided into sub-ministries to implement the education policy and provide the different educational levels. The federal sub-ministry of UPS is called SEM. SEM is relatively new as it was created in 2005, when the need for a UPS secondary regulator was recognised (Instituto Nacional para la Evaluación de la Educación 2011). SEM controls the directorships that manage the provision of most UPS school modalities. However, although all UPS school are meant to be "regulated" by SEM, there is no clarity in their objectives and each modality has its own structure and rules, as well as mechanisms and procedures for admission and selection.

A reason for the lack of homogenisation at the UPS level is that before SEM was created, a whole subsystem of schools operated already independently, without correspondence or articulation and without sufficient cross communication (Instituto Nacional para la Evaluación de la Educación 2011). This has an important impact on how the transition process works in Mexico, as there is no official regulation on the schools and the federal level has not managed to effectively bring order to this education level.

SEP initiated a plan to address the problem of the lack of regulation at UPS level. As a result, in 2005, the General Coordination of UPS and the SEM proposed the UPS reform, with the aim of giving order and coherence to the curriculum and improving the quality of the provision of education. The reform states some changes for the education level, although the changes do not address the differences in the procedures for admission at UPS and, to date, have not yet produced any major change (Instituto Nacional para la Evaluación de la Educación 2011). Consequently, I can infer that there will not be any kind of change to the transition process to UPS in the near future.

State's ministries of education and its UPS offices

The ministries of education in each State are in charge of the implementation of education policies, although in most cases the policies and programmes are designed at federal level. The States' Ministries have a greater degree of control of UPS and higher education, than they have at basic education level. This is very likely to be a result of the decentralisation of the education system that focused on basic education and the historical deregulation of the UPS level (see appendix of the chapter for more information). The study of the decentralisation of the education system has suggested that there are great discrepancies in the level of development of education systems at State level. As a result, some States may have a UPS office or department within the structure, but many others do not. The existence of a proper sub ministry of UPS in the States can be associated with the levels of education infrastructure they have. Better-developed States have greater amount of UPS schools and therefore have greater need of a department in charge of the level. Also the presence of the UPS department can be associated with the level of development of the education ministry in itself; so ministries that are better organised and structured recognise the need for a UPS office.

Moreover, if there is a UPS department within the State, it is more likely that the transition process is clearly specified and regulated. Such cases are Aguascalientes, Baja California, Mexico and Nuevo Leon, where even though they do not have the same transition process, the presence of a UPS sub ministry is associated with clarity and structure in the process of transition. On the contrary, where there is no UPS structure within ministries, it seems that it is at school level where the control over the transition process lies. As result there is an expected lack of clarity and transparency within the transition process. Examples of the latter are Campeche, Durango, Guerrero and San Luis Potosí.

In some cases where there is a UPS office the State still has the control of the transition context in the sense that it has been able to negotiate within the different school modalities or schools to unify and standardise the process of transition. All SEE States meet this criterion and is the State's Education Ministry who hires the external examination institution and who is more involved in the transition process in general.

Other State characteristics to consider in relation to the process of transition to UPS are the support they give students to be successful. In some States ministries are organising school fairs where LS students can attend to get information on the school options that are available, as well as admission procedures and requirements. The States that are taking this approach are: Aguascalientes, Baja California, Federal District, and Estado de Mexico, which have a UPS level office within the State's education ministry. The case of Aguascalientes is very peculiar as even when having a MAC process, the information on how to apply to all different options is collected by the ministry and students have easy access to information on the website. It suggests that even when there is no standardisation of the process it is still possible for the State ministry to hold control of the process.

External examination institutions

External examination institutions are also considered as actors at the macro level as they, in some States, are in charge of entry examinations and have an important influence on selection. These institutions are: The National Centre for Education Evaluation (CENEVAL), the Basic Knowledge and Skills Exam (EXHCOBA) and the College Board.

CENEVAL is a private non-profit organisation whose main objective is to design tests and assessments, as well as to analyse and disseminate the results (CENEVAL 2012). CENEVAL was created in 1994 by the National Association of Universities and Higher Education Institutions (Anuies). Its creation has been seen as a policy strategy to maximise the use of resources (Aboites 2000). This policy strategy focused on restricting access to UPS in the metropolitan area of Mexico City, where demand was growing at a rate that the existing Mexican education system would not be able to satisfy (Perez Torres 2004). Therefore, CENEVAL's main facilities are located in Mexico City. Among CENEVAL's main activities are the design and administration of entry tests.⁵⁸ The entry exams are called National Admission Exams (Exámenes Nacionales de Ingreso, EXANI). EXANIs are high stakes tests developed to help institutions with admission decisions. These comprise of EXANI-

⁵⁸ CENEVAL also designs and implements higher education graduation assessments and general knowledge and skills assessments, all of which are available for the institutions on request.

I at UPS level, EXANI-II at undergraduate and EXANI-III for postgraduate studies. EXANI-I is paper-based and can be defined as summative assessment.

At UPS level, the State's ministry of education or education institution has to hire CENEVAL to use the EXANI-I as mean of selection. CENEVAL can then become responsible for the exam's design, implementation and grading (Aboites, 2000). Students obtain a score according to their performance. That score is used to define whether they can get admitted to a UPS school. The way the scores are used to select applicants varies according to the level of control CENEVAL has been granted by the contracting party. In the same way, the type of contract will depend on the type of transition process that the State adopts.

For example, at MixAC and SBEE transition processes, the level of control that CENEVAL has on selection depends on the type of contract that has been signed. Schools can request CENEVAL just to provide the entry exam, mark it and provide the results. In these schools, applicants will then be selected internally. Other schools may allow CENEVAL to be in charge of the transition process as whole. With this type of contract, CENEVAL keep the results and provide the school with the list of applicants selected according to the number of places that the school reported were available. In the first case, both students and institutions will have access to individuals' results online. Conversely, in the second scenario neither the applicants nor the school will have access to individual applicant's scores.

In some SEE transition processes⁵⁹ the CENEVAL is hired to design the entry exam and be responsible for selection. In these States, both the schools and applicants will have access to the results once CENEVAL has selected and allocated the

⁵⁹ In the metropolitan area of Mexico City the selection process is performed by CENEVAL by the unique selection exam "Contest of Admission to UPS" (Concurso de Ingreso a la Educación Media Superior, Comipems). The Comipems has a single application call where students are selected using a single test: EXANI-I. The COMIPEMS, to ensure fairness in the competition, had hired the CENEVAL since 1996 for the development and implementation of the test used in the contest. This was the first attempt by a State to homogenise the process of transition to UPS.

students into the UPS schools; but neither the school nor the applicant will have access to consult individual applicant's scores.⁶⁰

The cost CENEVAL would charge for its services also depends on the different levels of involvement it offers. In States with SEE transition processes the amount students have to pay for the exam is 310 pesos (25 USD), which is directly paid to CENEVAL. Conversely, at MixAC and SBEE transition processes the cost varies and it can either be paid to CENEVAL by the school or by the school modalities.

CENEVAL has a catalogue of prices and the EXANI-I varies from 158 pesos to 172 pesos (13 to 14 USD) depending on the number of students taking the exam and the number of days the test will need to take place in the school (CENEVAL 2013). The final amount that the student will pay to sit the entry examination may or may not be the same, as the school often works as an intermediary.

The second external examination institution is the Autonomous University of Baja California (UABC) who run the Basic Knowledge and Skills exam (EXHCOBA). The UABC, concerned about the absence of an adequate standardised and reliable admission test, developed EXHCOBA in 1992 (EXHCOBA 2012). The initial purpose was to have an assessment instrument to be used within the UABC, which could be used by other Spanish speaking institutions to select students based on their ability to learn. This examination has evolved over the years and multiple psychometric studies have placed it as one of the more reliable assessment instruments⁶¹ in the country (Sanchez Alvarez et al. 2000).

60 The CENEVAL webpage lists the schools that have used the EXANI-I, although the type of contract that has been signed is not public. Therefore, to identify the level of involvement CENEVAL has in the transition process, this had to be investigated individually by school modality based on the information the schools provide. It is relevant to add that despite the high level of control CENEVAL has on the transition process to UPS, CENEVAL was not found to be transparent or accountable in their activities. I contacted CENEVAL in several occasions during the research to request information and in all cases the request was denied. In one of my attempts I requested the EXANI-I results for the 2009 academic selection. CENEVAL responded that the information is confidential. In another attempt I requested just the bulk of EXANI-I scores by State level. My aim was to identify students' performance in the entry exam and the amount of UPS applications that are being processed by state level. Nevertheless, even when no confidential information would be disclosed, CENEVAL argued that it is a private company and is not obliged to provide that kind of information. Additionally, I requested information on the cost of EXANI-I to individual schools, this request was also denied. In one of the responses they provided me with some files with information by entity. However the information in these documents related to general education information about all education levels, mostly about enrolment. This information is already publically available via the SEP.

61 Unlike entry exams that commonly evaluate the knowledge of students, EXHCOBA is a synoptic examination that assesses basic learning that the student has acquired during their school experience and what is necessary to achieve significant learning. EXHCOBA is computer based and assesses the understanding and application of core academic competencies to identify those students who have the basic skills and knowledge that will enable them to continue with their UPS education.

EXHCOBA operates as private company in the same way as CENEVAL. It has to be hired by the institutions and the contract will be signed by the UPS school and the UABC (as the service provider). However, EXHCOBA never have the control of the whole transition process. It will design the exam, be in charge of the implementation of the exam as well as the marking, but the school and students have access to the results. The exam is provided to the school as a program to be installed their computers (EXHCOBA 2012). Therefore, the school will have to have such equipment beforehand.

Since 2008, EXHCOBA unified the transition process in Baja California. It is also used by the UPS schools that belong to the Autonomous Universities as well as State UPS systems in Guanajuato, Nayarit, and Querétaro.⁶² For that reason the level of influence that EXHCOBA has on the transition process in Mexico is small, as the representation of schools using the exam as a selection instrument within these states is not significant (7 percent). The cost of EXHCOBA is 330 pesos (26 USD) in Baja California but information on the cost for individual schools or modalities in the other States is not available.

Finally, the College Board is a private examination organisation based in the United States formed in 1900. Since 1947 the College Board has responsibility for designing a test used in Spanish-speaking countries, Puerto Rico y Latino America: (PIENSE). The Spanish entry examination for UPS offers an effective tool for evaluating the academic and intellectual characteristics of students (The College Board. 2012a). The institution that hires the exam is granted access to PIENSE's system online and the school needs to have a computer for each applicant to sit the exam electronically. The exam is processed in Puerto Rico and the results come back to both the applicant and the school. The school then selects the applicants depending on their performance (The College Board. 2012b). The PIENSE Exam is the least used of the entry exams at UPS level. It is mainly used by some private institutions, as well as in the UPS schools from the Autonomous University in Puebla and Jalisco. Information on the cost that schools pay for the exam was not

⁶² There seems to be a relationship between the political orientation of the States and the use of EXHCOBA, as these States have had right of centre governments (National Action Party, PAN). Nevertheless, not all the States that have had PAN government use EXHCOBA.

available and the cost that the applicants pay to sit the exam varies according to the school (The College Board. 2012b).

5.3.1.2 Meso Level actors involved in the transition process

At the meso level I have identified the actors that serve as a liaison between the macro and micro level actors. These are the teachers union and the media (TV, written and online press and social media).

The CNTE and teacher unions

The national teachers union (Coordinadora Nacional de Trabajadores de la Educación, CNTE) has more than 1 million union members and is the largest union in Latin America (Santibañez and Jarrillo 2007). The CNTE has acquired over time an enormous amount of power and influence, not only in education matters, but also in political negotiations such as over high position allocations and elections (Raphael 2007). In education matters, the CNTE has gained veto power over policies and educational reforms, which limits the power of decision making for SEP and other government education policy makers. Additionally, CNTE has used this power to block the implementation of education policies by threatening or performing strikes.

The CNTE is organised by union sections at State level. The strength of each section can be a function of the collective influence of teachers depending on their own level of education and political affiliation. Santibañez (2007 and 2008) has studied Mexican teacher unions and proposed a characterisation where teachers' sections can be institutional or dissident according to their alignment or misalignment with the political party in power. It is relevant to note that despite the union serving for decades as the political arm of the Partido Revolucionario Institucional (PRI) (Arnaut 1998), currently, many sections of CNTE and their leaders support other parties and ideologies, which sustains Santibañez's characterisation.

Those union sections described as institutional are involved in politics and their alignment with the State party in power allows them to have influence and strength in education decision-making. This alignment is often used to promote programs and employment benefits for teachers. In general these sections are located in States with a low degree of union conflict and such means of negotiation

are not violent. Conversely, the dissident sections are represented by more radical ideologies and means of negotiation. Dissident union factions are strong and normally compounded by large numbers of teachers (Santibañez and Jarrillo, 2007). These sections often make use of strikes and demonstrations when opposing a proposal or as a means of negotiation. Most sections are institutional, but particularly in the central and southern part of Mexico, dissident factions have become very powerful, as in the case of Michoacán, Guerrero and Oaxaca.

In terms of the overall cohesion (or fragmentation) of the union, thirteen states have a section, seventeen states have two sections, one State has three (Coahuila) and the Federal District has four (see appendix). Santibañez has suggested that the existence of more than one section relates to the fact that States have two parallel systems of teachers: federal and state. Some teachers are hired and paid by the FG, while others are hired and paid the State. These parallel systems are the result of the decentralisation process that worked differently across States. This teachers' union characterisation, with some amends, is used in the political analysis performed in the following section.

As result of several legal agreements the CNTE practically has a monopoly over labour relations between teachers and the government. It is important to highlight that, to date, most of CNTE's members are primary and LS teachers. This is likely to change now that UPS has been made compulsory and as a consequence of reforms at the level. It is likely that UPS teachers will be invited to join the union or that they will find in CNTE a way of being organised to "protect" their interests.

Research relating to the relationship between the unions and UPS education or on the impact of teacher's unions in relation to the transition processes to UPS level is non-existent. Nevertheless, the CNTE and their sections are always involved in the education systems and their power and influence cannot be ignored. It is also likely that the greater importance given to UPS at a national level will influence the willingness of CNTE and local teacher unions to impact debates in this area.

The media

The second meso level actor, the media, was found to have a great impact on the amount of information available regarding the process of transition to UPS. Media involvement in the process varies greatly among States. In the Federal District, Hidalgo, Nuevo Leon, Sonora, Tlaxcala and Veracruz the media is very active in this area. It follows the whole process from start to end, producing articles about the situation of UPS level in the area, schools, availability of places, the exam and its characteristics, and recommendations on how to prepare for the exam. In other States the media is present only when the results of selected students are made public or if there are demonstrations or problems linked to the transition process. It is important to highlight that there was not found a relationship between how active is the media at each State (particularly written and online press) with the level of marginalisation of the States; however media appears to be active at States where there is active social mobilisations.

The role of the media was not found to be critical or challenging for the definition of the transition process in itself, nevertheless, it can instead be considered as informative and illustrative. The information on the transition process found in the media was very helpful when no other information was found at the State level. This is likely to also be the case for applicants that are trying to get information on the transition process where such information is not available in the most obvious places, such as the ministries of education or schools' websites.

The media also was found to contain advertisements for private companies that offer to prepare students for the entry examinations. It appears that the market for the selection exam has been opened up to support students through the transition process. Media outlets within most States contain this kind of advertisements.

5.3.1.3 Micro Level actors involved in the transition process

At a micro level the actors identified are: private assessment preparation companies, the school modalities or UPS schools and the students (and their families) who are willing to apply for UPS.

Private assessment preparation companies

Due to the significance that the performance at the entry examinations has on the likelihood that an applicant gets a place at UPS or a place at the school of preference, a new market for assessment preparation companies has been created. These companies are mostly very small schools where the only services offered are courses to prepare students for the UPS entry exam. These schools specialise in EXANI-I preparation but some of them offer as well preparation for EXHCOBA and PIENSE depending on which is relevant for the context. The type of support offered by these companies includes Mathematics, Science or Spanish preparation, based on the examination questions. They also advise on exam and revision techniques to improve performance such as fast reading techniques and how to identify the correct answer from the multiple option questions.

The preparation offered, these companies argue, improves students' chances to get accepted in the school of preference. It has been documented by the media that students applying to high demand schools tend to be the ones using preparation courses.⁶³ The market for these courses has been steadily increasing, as they are seen as the only way a student may achieve a good performance in the entry examination. This suggests that students do not feel confident with their projected levels of achievement and use this option to maximise their chances of getting a place at UPS.

UPS Schools

It is relevant to state that UPS school options may vary little from State to State. The general modalities provided by SEM can be found in every State. Yet if the State is highly industrialised then more technical school options may be found and in those States that have large agricultural economies, more schools related with agricultural industries may be found.

Schools have a common curriculum provided by the modality. It is important to highlight that school's modalities at State level have freedom to adapt the curriculum according to particular needs and context conditions. School modality

⁶³ To serve as example please refer to <http://suracapulco.mx/archivos/87791>

regulation varies from State to State. This is the reason why the same school modality in one State may request an entry examination, while those in other States do not.

In States where the education ministry is not heavily involved in the administration of the UPS level, the schools have more control of the transition process and will define their application deadlines and admission procedures. These schools are more aware of their level of influence, in the sense that their admission procedures will be controlled by them and based on their recognition and demand, creating a sense of competition between schools. Students may compete harder to get accepted in schools with high recognition and high demand.

Schools with high demand may hire an external examination institution to administrate the process of admission. When it is the school who directly hires the external examination institution, the school is likely to be very large in order to have enough resources to afford this payment. However, the CENEVAL is very reluctant to give information on how much school are paying to hire its services. The final amount that students have to pay to sit the entry exam varies from school to school. The reason for such variation remains obscure, but it can be inferred that schools calculate the cost depending on how popular it is among applicants.

Prestige and demand between schools varies greatly by modality. UPS schools that belong to the Autonomous Universities in the States are always in higher demand. They are assumed to be of higher quality and to provide greater chances for students to get into HE (Weiss et al., 2005, Perez Torres, 2004). The technologic core and general schools are also normally in high demand; technologic schools are popular among students that aspire to get a vocational degree, while general core schools contain those that have the motivation to continue studying.

Students and their families

Students that choose to continue studying UPS in Mexico compete for the first time to get a place in a public school (Weiss et al. 2005). Therefore it is expected that the differences between transition processes may affect students' decision to progress as well as their chances of being successful in the transition to UPS.

As mentioned before, to my knowledge there is no research on students' experiences of the transition process. However, media has documented how active students need to be in order to complete successful transitions.⁶⁴ This involves being more proactive in their understanding of the procedures and in their preparation for the entry examinations. Therefore, it can be expected that students coming from low income backgrounds may be at a disadvantage in the transition to UPS, as it involves or requires higher social capital (Aboites 2000; Perez Torres 2004; Weiss et al. 2005).

Furthermore, family support in the process has been documented to be important (Hernandez, 2007). In Mexico, parents continue to be involved in supporting their offspring's UPS application, although the level of involvement varies widely. Students that are supported by their families tend to be more motivated to complete the application process, regardless of the transition process to follow. This has been proven to be true when comparing applicants in Guerrero and Mexico City, MAC and SEE transition processes, respectively (Hernandez, 2007).

5.3.2 The Political Economy of the transition process

The actors with a significant level of influence in the transition process to UPS have been identified and described previously. In this section I develop a political-economical analysis of the transition process. As mentioned before, importance is given to the historical development of the relationships involved in the process; therefore, I enquire how the decentralisation of the education system has affected the transition process to UPS. As a matter of completeness I perform a simple statistical test, as a tool, to corroborate if the relationships found are statistically significant (tables of these analyses are presented in the appendix of Chapter 5).

The analysis of the education decentralisation process in Mexico suggests that the development of the LS level defined the nature of UPS demand and how the system worked in response to satisfy it. States started to build and control UPS schools, doing so in relation to their own requirements and to their own timescales. Thus, the UPS grew with no control or guidelines from the FG and reflected the characteristics of each States' educational demand, structure and the actors

⁶⁴ Please refer to *diario de Chiapas* available at: www.diariodechiapas.com, *Diario Reforma* available at: www.reforma.com and *el Sol de Toluca* available at: www.elsoldetoluca.com.mx for some examples.

involved. The only State where the FG maintained control over the education system and consequently over UPS was the Federal District. This regulation implied the unification of the transition process for all the UPS schools and the creation of the CENEVAL as institution to administrate the process.

As part of the formal institutions that surround the transition process, 2012 saw a change in the regulation of what is considered compulsory education in Mexico. This amendment states that the basic compulsory education now will include the UPS level. The 2012 amendment also states that the FG will issue relevant guidelines to contribute to improve the quality of education and that equity is the essential factor guiding the provision of education. Regarding the latter aim, the FG has led the Reforma Integral de la Educación Media Superior (Comprehensive Reform of UPS). The document includes guidelines on what sort of changes and improvements the education level needs in order to be compulsory and universal. However, the Reform of UPS does not give any indication of major changes that are required at State level, neither does it addresses the procedures for admission and selection. This position could be a result of the FG's understanding that UPS is not under its control. It could also be an attempt to put UPS, and the changes needed to universalise it, to the public agenda but without setting up what could be complex and controversial guidelines for what has to be done.

Leaving the reform as just a set of guidelines can result in two possible scenarios. On one hand can it can stimulate debate about what is needed and raise awareness of the problems that the UPS level is facing to relevant actors whilst avoiding the expected conflict in certain States where such national imposition is not well accepted. On the other hand, as there is no reinforcement, it is likely that in some States (particularly those with poor educational infrastructure and high levels of conflict) the reform will led to nothing, while in others (with better education infrastructure) may start work to make UPS universalisation feasible. If this last scenario happens, the degree of inequality of access to UPS will not narrow.

Regarding the informal institutions, it is important to keep in mind that the UPS level has been deregulated and has been operating in a decentralised way for decades. With the decentralisation process, UPS schools accomplished by accident, what other education levels had struggled to get: autonomy in their decisions and

its curriculum. Their curriculum and admission requirements were constructed in their own context, according to the needs of the applicants, their teachers and via the relationships with the Unions, as well as the demands of the market. Therefore, introducing guidelines might be the extent of the intervention that the FG can achieve at UPS.

The historical effect of the educational decentralisation on the transition to UPS processes, highlights that UPS level is deregulated and lacks a formal structure. The reason for this is that UPS grew in the shadow of the compulsory education level, while States were trying to absorb and manage the education system transferred during decentralisation. Additionally, as UPS was not part of the compulsory education until 2012, States' education systems administrated and controlled the level according to local demands and needs.

As it has been highlighted, the differences between States' education systems relate to the capability that they had to absorb the education responsibilities from the beginning. This translates into the level of regulation they have of UPS level and therefore of the transition process. It has been found that States with higher levels of educational infrastructure or that have an UPS office are associated with a stronger definition of the transition process. This does not imply that they have a more standardised transition but that the process is clearly defined and publicised. Taking the case of Nuevo Leon as example, the State uses SBEE transition process; nevertheless, the education ministry office offers information on the process of transition to every UPS option available in the State. The cost and procedures for the transition are also publicly advertised.

Mexico and Baja California are other example of States that had the ability to absorb the education system with certain ease. They created UPS offices within their structure and have SEE transition process where there is clarity and organisation about transition. In these States, students have access to relevant information on procedures, deadlines and costs. These characteristics are expected to have an important effect on students willing to make the transition.

Conversely, at States where the decentralisation occurred slowly and States struggled to adapt and absorb the education system, there tends to be a lack of a

UPS office. In such cases, the transition process is organised by the schools who, over time, acquired the responsibility of selecting their applicants. This has been found to be one of the main reasons why the transition process is poorly advertised and lack clarity. For example, Morelos and Campeche show a lack of accessibility of transition information. Morelos has SBEE and Campeche the MAC transition process. Despite the differences in the admission criteria, they are not offering students the opportunity to access a UPS education system where the procedures, deadlines and costs are clear.

Additionally, the relationships with the teacher unions have proven to be a very important characteristic to consider when analysing education systems (Cabrero 1997; Reséndiz. 1992; Santibañez and Jarrillo 2007). Nevertheless, the relationship between the type of union that exists at the State (dissident, disputant or negotiator) and the type of process used for the transition to UPS has not proven to be statistically significant; as when analysed with a chi square test the categories of teacher union and States do not show significant results.⁶⁵

The political affiliation of the State is considered here as part of the institutional context at each State. It is believed that there is a relationship between the political party in power at State level and the type of transition process used. We can observe that States with Party of Institutional Revolution (PRI) affiliation are more likely to have standardised transition processes. This relationship was proven to be statistically significant when I analysed the data and performed a chi-square test between the types of transition process and the political party in power. Nevertheless, the relationship has to be understood in the light that PRI has been in power for longer in Mexico (the party ruled for over 70 year at federal level up to 2000 when Mexico elected the 1st PAN president). The fact that both Federal and State level political affiliation match may be the reason why more standardised education systems coexist, as the transition procedure has a degree of unification.

⁶⁵ It highlights that SBEE states concentrate the largest presence of dissident unions, while SEE tends to have disputants. Also it can be observed that the largest teachers' unions (Mexico, Federal District and Veracruz) have a SEE transition process. Interestingly no dissident or disputant union sections can be found at MixAC States. Furthermore, smaller unions are associated with both being negotiators and having minimum admission criteria. These results have to be understood in the context that the majority of union militants are primary and LS teachers which explains that UPS teachers involvement has not been important and therefore the relationship has not shown to be relevant in the definition of the transition process at State level. It can be expected that the relationships might change when more UPS teachers start joining the unions. Nevertheless, the impact of these changes is yet to be seen.

It is also important to mention that in those States with strong PRI affiliation the relationship with CENEVAL has been consolidated over many years. Therefore, CENEVAL has been appointed as the institution in charge of the transition process in full.

The external assessment institutions were found to have significant control over the process of transition within States that have additional admission criteria. As mentioned, CENEVAL is monopolising not only the transition process to UPS but also the information available,⁶⁶ which involves profit and economic influence (Perez Torres, 2004). It is relevant to consider that the CENEVAL was created when the main political party in power was PRI. It is then expected that States with opposing views are more open to using different kinds of selection instruments. When comparing the type of examination used and the party in power it is found that States affiliated with PAN are more likely to have included other examination institutions to select UPS students at state schools. This is the case of Baja California, Guanajuato and Queretaro that use EXHCOBA.⁶⁷ In the same case are Jalisco and Puebla that are using PIENSE at UPS State schools. It can be inferred that there is relationship between political affiliation and the external examination institution used and that this has been constructed over time.

To investigate the relationship between economic factors and the transition process, I use the Marginalisation Index from CONAPO to observe the level of development in the State. I performed a chi-square test between the categories of marginalisation and the type of transition process used, as well as an ad-hoc test to measure in which groups the relationships are significant. I found statistically significant associations between having the MAC transition process to UPS and very high levels of marginalisation. This suggests that States with very poor education, health, housing and income relates to the fact that the transition systems are not requesting additional admission criteria. This has a double cause: on one hand the demand for UPS is not high enough to need selection systems, and

⁶⁶ It has also been argued that the power CENEVAL has acquired over time permeates other education spheres making the institution have the control over the selection of students at all post compulsory education, as well as their graduation (exit examinations). It has managed to monopolise the sector.

⁶⁷ Nayarit is the only exemption; being a State that is not PAN affiliated but uses EXHCOBA for entry examinations in State schools.

on the other local governments are aware of the conditions of their population and therefore decide not to add a barrier into the transition to UPS.

Federal education expenditure was also considered. A relationship was found between having large funding contributions from the FG and having SEE transition processes. We can read the result in two ways. First, the fact that the State has a strong support from the FG is related to a standardisation of the transition process. Secondly, we know that federal education funding is related to the amount of schools that each State has. Thus larger States with expected higher demand for education will need to include additional admission criteria and tend to standardise the process of selection (the only exception is Tlaxcala).⁶⁸

Additionally, some social/demographic characteristics are included in the analysis. The results show that the type of transition process that prevails at each State seems to be related to the size of the UPS potential demand, that is, the amount of students that complete LS in the previous year. States that have accomplished the highest LS NER use a SEE process transition to UPS. In States with smaller UPS demand or where historically the State's education ministry has managed to control the UPS level, the process of selection has no additional admission criteria. Conversely, States with high UPS demand tend to have additional admission criteria and when the number of applicants and potential exceeds the number of places available the States are making an effort to have/use a more standardised transition process. Surprisingly no significant relationship was found between UPS NER and the type of transition process used.

Finally, The amount of UPS schools in the State has a statistically significant relationship with having additional admission criteria. This suggests that when States have a greater amount of schools to satisfy, this greater demand is associated with either having SBEE or SEE transition processes.

⁶⁸ Furthermore, States' contribution to the GDP was considered. It is found that States that have the highest contributions (Mexico and Federal District) have a SEE transition process. This support the results presented. Larger States with high funding for education and low levels of marginalisation tend to use SEE as transition process. That respond to the fact that the UPS education demand is higher and applicants are in a better economic position to compete for a place. Conversely, States with opposite scenarios tend to have minimum admission criteria.

5.4 Final remarks

This chapter focused on the process of transition UPS in Mexico and provided a characterisation of how the transition process works. I identified the coexistence of four types of transition process to UPS: MAC, MixAC, SBEE and SEE.

MAC transition process comprise of States where schools select students by using minimum admission criteria. MixAc process comprises of States where students may find a mix of schools with minimum admission criteria as well as schools that use entry examinations. SBEE transition process can be found at States where schools use an entry examination as a mean of selection, nevertheless the entry examination used at schools within the same modality may vary as they are managed by the schools. SEE transition processes can be found at States where a standardised selection of applicants takes place. In this process, students will sit a single examination to apply for any UPS school option available.

Therefore the transition processes used can be characterised by how homogeneous/standardised the procedures are, as well as by the extensiveness of their use of examinations. MAC and SEE have homogeneous procedures while MixAC and SBEE have heterogeneous procedures. MAC and SEE are categorised as homogeneous because the procedures are the same in the whole State. Students either apply directly at the school that will then request the minimum admission criteria (at MAC) or they apply through the unique selection exam (at SEE). On the contrary, MixAC and SBEE are heterogeneous transition processes as the mechanisms for the admission vary according to the schools. Students may find schools that do not have admission criteria and others that use entry examinations. MixAC can be considered the most heterogeneous because students would not know which schools would have minimum admission criteria and which ones use entry examinations. Conversely at SBEE, some schools do not have additional admission criteria while certain schools' modalities use entry examinations. Nevertheless, among the latter, students willing to apply at two schools of the same modality will still need to sit an entry examination at each.

Regarding examination extensiveness, the use and influence of entry examinations define the differences between MAC, MixAC, SBEE and SEE. MAC makes no use of

entry examinations. At MixAC, students may find schools that do not use entry examinations and others that do. The schools that use examinations may not be of the same modality, as the schools decide internally the mean of selection and the stake the examination has in the process. Moreover, at SBEE some school modalities are using examinations. Therefore in MixAC and SBEE students may still complete a transition to UPS without sitting an entry examination. Nevertheless, students at MixAC may find more schools that do not use entry examinations than in SBEE. Conversely, at SEE students will sit only one exam in the transition. In SEE, students' scores are used to allocate students at schools provided by the State; hence SEE is the most competitive transition context. Therefore, using the categorisation of the transition processes by their assessment extensiveness: SEE is the context with the most extensive use of entry examinations, Followed by SBEE and MixAC, while MAC uses no entry examination.

Additionally, I performed a political economy analysis of how the process of transition works among States. The results of the analysis suggest that the transition process can be seen a reflection of the institutional interactions between social, political and economic factors. Additionally, the transition process is the result of the history of how those interactions have been developed, sustained or transformed over time.

A political economy approach was used to identify the political, economic and social variables that trigger the type of transition process that prevails at State level. I identified actors, as well as formal and informal institutions that interact within the transition process to UPS in Mexico. Special importance was given to the history of the decentralisation of the education system.

The actors identified that have important involvement and influence in the transition process were described by the level of interaction at either macro, meso or micro level. Those actors are SEP-SEM, education ministries in the States and external examination institutions at macro level; CNTE and the media (national and local) at meso level and finally, private assessment preparation companies, schools, teachers as well as, students and their families at micro level.

The political economy analysis of the transition to UPS highlighted few findings:

- The differences between States' education systems may relate to the capability that they had to absorb the education responsibilities that the decentralisation process transferred. This translates into the level of regulation they have of the UPS level and therefore the transition process.⁶⁹ State education systems that absorbed the education system with more ease after decentralisation tend to have homogeneous transition systems and make use of examinations.
- The data suggests that States that have reached certain levels of enrolment at UPS level could be more likely to have a standardised selection process (the only exemption is Veracruz that even though having medium levels of education infrastructure and low enrolment at UPS is using SEE).
- If the UPS demand is high, the transition processes tend to make use of examinations. In that sense the greater the UPS demand pressure, the more extensive the use of examinations.
- The stronger the history of PRI party in the State the higher the chances that the State will use entry examinations. This also relates to how the transition processes will include CENEVAL as an external examination institution.

The following chapter examines how the differences in the transition process used may relate to students' selection.

⁶⁹ Additionally, the type of teacher union at each State was not found to have an important association with the transition process chosen by each State. Nevertheless, it has been highlighted that the involvement the Union have in the process might soon change after the UPS Reform takes formally place.

Chapter 6. The selection at upper secondary level under different transition processes

This chapter investigates whether the socioeconomic and achievement composition of 15 year-old students is different by transition processes. In particular, it asks what the characteristics are of the 15 year-olds selected at UPS and how do they differ in States that use different transition processes? In order to respond to the main research question, this chapter focuses on 3 sub questions:

1. Do different transition processes promote different socioeconomic compositions of students in UPS?
2. Do different transition processes promote different achievement compositions of students in UPS?
3. Does the level of marginalisation of the States where students live promote a different selection of UPS students even when performed under the same transition process?

This chapter argues that the differences in the transition to UPS in Mexico may have an effect on the effectiveness and efficiency of the selection at UPS level. I argue that the selection at UPS is effective when the transition process offers equitable access to students of the relevant school age (15 years-old). Therefore, when selection is effective UPS students' socioeconomic characteristics would be similar to the characteristics of the students finishing LS who come from different socioeconomic backgrounds. Moreover, the selection at UPS is held to be efficient when students with higher achievement are selected. Hence, an efficient selection at UPS would show that students at UPS have higher achievement levels than students at LS.

Furthermore, I assume that the different transition processes may show different patterns of student selection due to the homogeneity or heterogeneity of their procedures, as well as the extensiveness of their use of entry examinations. In terms of effectiveness, transition processes that have heterogeneous procedures may not produce an effective selection at UPS level, as students coming from disadvantaged backgrounds may find it more difficult to complete transitions. Also

it could be expected that transition processes that do not have examinations are more effective than a process with entry examinations as the former have no additional filters impacting on the selection. Regarding efficiency, it can be expected that students that have higher levels of achievement would be more able to complete transitions at processes that have heterogeneous procedures. Hence in transition processes with heterogeneous procedures you would expect to find a greater proportion of students with high achievement levels than with simpler procedural processes. Lastly, it could be expected that transition processes that use entry examinations will be more efficient than processes that have no additional admission criteria; and that the more extensive the use of entry examinations, the more effective the selection.

This analysis is undertaken using PISA 2009 data for public schools, which contains information about 15-year-old students who are either enrolled in LS level or who have completed the transition and are enrolled at UPS. To investigate students' socioeconomic background I use PISA's ESCS index which measures socioeconomic and cultural capital and to study students' achievement I use PISA's reading scores. For the analysis I use quantitative methods to study whether there are distributional shifts in the socioeconomic background and achievement of LS and UPS students under different transition processes.

The chapter is structured as follows. Section 6.1 describes the methodology, methods and variables used in the analysis. Section 6.2 investigates socioeconomic background differences between LS and UPS students under different transition processes. Section 6.3 investigates the differences between LS and UPS students' reading scores under different transition process.

6.1 Methodology and methods in the study of the effectiveness and efficiency of the selection

In this section I present the methodology and methods used in the chapter. This chapter investigates the economic grounds of the selection under the different transition processes used for the transition to UPS level in Mexico. The analysis is divided in two main areas. First, I enquire the effectiveness of the selection at UPS and second, I investigate the efficiency of the selection at UPS.

This section is subdivided in two. In subsection, 6.1.1 I present the methodology as well as the data used in the study of the effectiveness and efficiency of the selection at UPS. In subsection 6.1.2 I present the methods employed in the analysis. Such methods are: one-way analysis of variance (sample weighted test), post-hoc tests, tests for slope differences, chi-square goodness of fit test and quintile regression.

6.1.1 The methodology in the study of selection

The economic theories outlined in Chapter 4 suggest that an effective transition process would select students by prioritising the objectives of the education system (Campos 2006; Valli and Johnson 2007). The Mexican education system's established objective is to offer equal access opportunities (Camara de Diputados del H. Congreso de la Unión 2012). Hence, it would be expected that regardless of students' socioeconomic background they would all have the same opportunities to be selected to study at UPS. The economic theories also suggest that an efficient transition process would select students with higher levels of achievement. This is desirable because students with higher achievement levels may make better use of the education received and are less likely to drop out, as they are prepared and motivated to learn (Laursen 1993; Valli and Johnson 2007). Therefore, in the study of the selection under different transition processes at UPS I focus, on one hand, on the socioeconomic background of students and on the other on the achievement of the students selected, to enquire whether the selection of UPS students is done effectively and/or efficiently.

The analysis uses PISA 2009 data of students in public schools, which includes data on 34,202 students that are enrolled at either LS (29 percent) or UPS level (71 percent). I use the data from public schools only because the transition process studied in this thesis is specific to the public school system.⁷⁰ To investigate whether the selection is effective I use PISA's ESCS index⁷¹, while to investigate efficiency I use PISA's reading scores. PISA's ESCS index is constructed from

⁷⁰ Private schools represent 10 percent of the sample.

⁷¹ The index ESCS is constructed with three indicators: the parent occupational status (HISEI), the parent education measured in years of formal schooling (PARED), and the household possession as an indicator (proxy) of family wealth (HOMEPOS). Recent international studies in the field of education show that ESCS is able to capture wealth better than income because reflects a more stable source of wealth (Ricci, 2010). Therefore ESCS index is chosen to be the best measurement of comparison between LS and UPS students' socioeconomic background. ESCS scale by construction has an average equal to 0 and its standard deviation is 1 ((Ricci, 2010, OCDE, 2009). In the Mexican collection in 2009 the ESCS index has a scale of -5.53 to 2.6874 with a mean value of -1.15 and a standard deviation of 1.28.

students' responses about parental level of education, parental occupation; possessions related to family wealth and home educational resources related to culture (OCDE, 2009). Hence ESCS is a good measurement of students' socioeconomic and cultural backgrounds. In addition, PISA's reading exam measures students' reading achievement and the reading skills that students must have acquired by the time they are 15-years-old. I only use reading scores to measure achievement because in 2009 the PISA survey focused on reading; hence in the 2009 sample reading is the best available measure of students' achievement.

As outlined in Chapter 3, the use of PISA has some limitations that have to be considered before undertaking analysis. Firstly I do not observe students during their transition. Hence, I could only observe and compare the characteristics of 15 year olds that are in LS and those in UPS who completed the transition. Therefore it is expected that there are intrinsic characteristics of both groups of students that I cannot measure. Secondly, PISA does not have high stakes within the Mexican transition process and it is not the examination used for UPS selection. However, it is the only source of information that could be used to compare students' achievement at grades 9 and 10 across Mexico.

For the analysis I also use the categorisation of transition process constructed in Chapter 5: MAC, MixAC, SBEE and SEE. It is important to keep in mind that the differences between processes relate to how homogeneous their admission procedures are and how extensively they use entry examinations. Finally, in the analysis performed in this Chapter I also use the marginalisation index by State level provided by the National Council of Population (Consejo Nacional de Población 2011; Consejo Nacional de Población. 2010b). This defines the level of marginalisation in five categories: very high, high, medium, low and very low levels of marginalisation. This characterisation of marginalisation is used because it is believed that the characteristics of the States where students live affect the type of selection performed under the different transition processes.

The methods focus on observing and analysing the distributional changes between LS and UPS students under different transition processes. LS populations are considered as a reference group of 15 year-olds that have not completed a transition but are in education. By comparing the characteristics of UPS students

with their peers at LS level, inferences can be made with respect to the effect that the different selection processes have. It is important to highlight that the methodology used to study both the effectiveness and efficiency of the selection is the same and therefore I present the methodology of the two analyses together. This methodology has three main areas: 1) descriptive analysis, 2) distributional analysis and 3) State effect analysis.

Descriptive analysis

Descriptive analysis is used to provide insights on whether there are differences between LS and UPS students that may be attributed to the different processes used in the transition to UPS. I begin the analysis by describing the statistical differences amongst LS and UPS students' socioeconomic and cultural backgrounds and achievement levels in the study of effectiveness and efficiency respectively. I divide both the ESCS and reading scores in quintiles to observe the differences in the distributions by education level and transition process. Moreover, I use one-way analysis of variance tests to investigate if there are statistically significant differences; as well as, post-hoc tests to enquire whether the differences between groups are significant. Furthermore, I present graphically the quintile distributions of ESCS and reading scores by transition processes. I calculate the slope in the representation of students by their background and achievement to observe whether, at the transition processes, there is a shift in the representation of UPS students when compared to LS students. Additionally, I test the significance of the slope differences. I also use chi-square goodness of fit tests to check if observed proportions of socioeconomic and cultural background and achievement of students at UPS differ from those existent at LS. For this I observe ESCS and reading scores' quintile distributions at LS level and compare them with the observed distributions among UPS students at each transition process. This test allows me to check if the observed quintile distributions of LS and UPS students are statistically different at each transition process. In particular, I use this analysis to observe whether certain groups are either overrepresented or underrepresented at UPS level according to the transition process used for their selection.

Distributional analysis

I perform distributional analysis to observe differences in the effectiveness and efficiency of the selections performed under different transition processes. I hypothesise that the effectiveness and efficiency of the different process may be evident when studying the ESCS and reading scores' distributional shifts between LS and UPS. Most importantly these changes are expected to be observed at the top and bottom tails of the distributions, as the transition processes are more likely to affect the representation of students from the poorest and wealthiest socioeconomic backgrounds (Bracho, 2002), as well as, the representation of the best and worst performers (Walpole et al., 2005, Konečný et al., 2012).

The distributional analysis is divided in two. The first step is to analyse the changes in the representation of the poorest and wealthiest students, as well as, the best and worst performers selected under different transition processes. For this analysis I sort the data in descending order separately for LS and UPS students' ESCS index and reading scores and select the highest and lowest 20 percent of the distributions. I compare the representation of those LS and UPS students to observe whether their representation shifts by transition process.

The second step in the distributional analysis uses quantile regression (QR). I use QR to observe the associated effect between the type of transition process and the level of education on the distribution of the ESCS index and reading scores at different points in their distributions. I calculate these effects at three cut off points: 20th, 60th and 80th percentiles. Percentiles 20th and 80th are considered the tails of the distribution, while percentile 60th works as a reference point for the centre of the distribution. The analysis of the QR is performed by comparing LS and UPS coefficients under each transition process. In such a comparison, LS effects are seen as the status quo of either the ESCS or the reading achievement among 15-years-old in the transition process observed; therefore the comparison of the interaction effect of transition process and UPS level may suggest something about the process of transition when compared to the effects of LS level.

State effect analysis

It is believed that the characteristics of the States in which students live mediate the type of selection each transition process can perform. Therefore, I further investigate whether the transition process in combination with the characteristics of the State in which students live affect the selection of UPS students. To classify States according to their characteristics I use the five levels of marginalisation by CONAPO (see Chapter 3 for more information).

The analysis starts by comparing the ESCS mean values and reading scores of LS and UPS students under different transition process, subdivided by the level of marginalisation of the State where students live. Since the most radical variations are found among the States with contrasting levels of marginalisation⁷² I observe the differences between States with high and very high levels of marginalisation (group 1) and States with low and very low levels of marginalisation (group 2). Group 1 contains the following States with very high level of marginalisation: Chiapas and Guerrero that use MAC and Oaxaca that uses SBEE. Additionally, it includes the following States with high level of marginalisation: Campeche that uses MAC and Hidalgo that uses MixAC; Michoacán, Puebla and San Luis Potosí that use SBEE and Tabasco, Veracruz and Yucatan that use SEE. Group 2 contains States with low level of marginalisation: Aguascalientes, Baja California Sur and Colima that use MAC; Tamaulipas that uses MixAC; Jalisco and Morelos that use SBEE; and Chihuahua, Mexico, Quintana Roo and Sonora that use SEE. Additionally, Group 2 includes the following States that have very low level of marginalisation: Coahuila that uses MixAC, Nuevo Leon that uses SBEE and Baja California and the Federal District that use SEE.

I further explore how the marginalisation of the States may affect the selection by studying the distributional changes of ESCS and reading scores by States level of marginalisation and the transition process used. I present graphically the distributions of ESCS and reading scores of LS and UPS students at each transition process by level of marginalisation and calculate the slope in their representation by their background and reading achievement, to observe whether the transition

⁷² The ESCS value and reading scores of LS and UPS students that live in States with middle level of marginalisation States do not show important variations.

processes shifts the representation of UPS students when compared to their peers at LS. Additionally, I test the significance of the slope differences.

6.1.2 The methods in the study of the selection

I use quantitative methods to answer the three research questions that guide the chapter. Here I present in some detail an explanation of how each method works, why I selected them and the assumptions informing their use. I also explain how I perform the analysis and give insight on how the results are interpreted. For more detailed information on the calculation of each method please see Annex 1. The methods that I employ in this chapter are: one-way analysis of variance (weighted sample version) and post-hoc tests; test for slope differences, chi-square goodness of fit tests and quantile regression analysis.

ANOVA weighted sample tests and post-hoc tests

I use a one-way analysis of variance (ANOVA) weighted sample test version to determine whether there are significant differences between the means of groups which have unequal sample sizes. ANOVA is a statistical method used to test differences between two or more means by analysing their variance (Damon, 1986). I use ANOVA to study the effectiveness of the selection under different transition processes by checking whether there are statistically significant differences in the ESCS background of students by transition process (MAC, MixAC, SBEE and SEE) and education level (LS or UPS). In the second analysis that relates to efficiency, I use ANOVA to test whether there are statistically significant differences in the mean reading scores of LS and UPS students by transition process. It is assumed that the description of statistically significant differences between the groups can serve as a foundation to observe differences in the selection performed under different transition processes.

The ANOVA tests the following hypothesis (Cuevas et al., 2004):

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 = \mu_3 = \mu_4$$

Where μ = mean of either ESCS index or reading scores by each of the four transition processes groups and education level. If the ANOVAs show significant

results I accept the alternative hypothesis (H_1), which means that at least the means of 2 transition processes are significantly different from each other.

ANOVA tests have some assumptions that have to be met to provide true results (Bartholomew, 2008). The assumptions are:

- The dependent variable is normally distributed. The dependent variables in my study are: ESCS index and reading scores which are indeed normally distributed.
- There is homogeneity of variances. This means that the population variances in each group are equal. In the data used, this assumption does not hold as the variance is determined by the sample size. I compare samples of students who are either enrolled at LS or UPS and therefore the representation of the sample is unbalanced. Moreover, the categorisation of transition processes contains samples with different representations of students by State level.

As the samples compared in this thesis have different numbers of observations, ANOVA cannot be used because the results would be misleading. However ANOVA has a version called ANOVA weighted sample test that works for unbalanced samples. This type of ANOVA can be used when samples, whether by design, chance or necessity, have unequal numbers of subjects in each group (Kulinskaya et al. 2003). So despite the fact that the unequal N causes confounding, the ANOVA weighted sample test calculates the difference between weighted and unweighted means by calculating them in accordance with sample size. This is computed by multiplying each mean by its sample size and dividing by N.

It is important to keep in mind that the one-way ANOVA cannot test which groups are significantly different from each other; nevertheless, to determine it I use post-hoc tests. Post-hoc tests are run to confirm whether the differences occurred between groups are significant. When using these tests the experiment error rate is controlled at 5 percent (Cuevas et al. 2004).

There are a number of different post-hoc tests⁷³. The results that I present are obtained through the Tukey-Kramer test (UCLA 2013).

Test for slope differences

Whenever data has been gathered from two quantitative variables, the relationship between them may be displayed graphically (Cohen and Cohen, 1975). In this chapter I use graphs to display the relationship between the transition processes and the distributions of ESCS and reading scores. In particular, I use graphs to show how the focus variables' distributions change according to the type of transition process. In the graphs I also include the calculation of slopes, which intend to show visually and mathematically how strong the representation variations of such distributions are.

The slope of a line measures how much the value of y changes for every change in the value of x (Cohen and Cohen 1975). The slopes that I present show the representation of students with certain ESCS levels and their reading achievement at LS and UPS. Therefore the analysis that I perform is based in the comparison of slopes between LS and UPS students at each transition process. By doing this comparison I observe how the distribution of ESCS and reading scores are at LS level (considered as reference) and compare them with the distributions at UPS, as the shifts may relate to the type of process used in their selection.

In the analysis I also observe if the steepness of the slopes at LS and UPS are different and significant.⁷⁴ This means that slope difference is calculated and interpreted. For example, if the ESCS slope at LS changes from negative to positive at UPS level it can be inferred that the representation of students' socioeconomic and cultural background has changed from a distribution where there was wider representation of students with the poorest backgrounds to a wider representation of students from wealthiest backgrounds at UPS level. The calculations are presented in Annex 1.

⁷³ Computationally, the Tukey-Kramer and the Fisher-Hayter are the same but they use different critical values of the Studentised Range distribution. The Tukey-Kramer or the Fisher-Hayter are usually preferred when the cell sizes are unequal (UCLA, 2013). As the cell sizes in my data are unequal I compute the results of the Tukey-Kramer that uses degrees of freedom of k and dferror where k is the number of levels and dferror is the degrees of freedom associated with the MSerror in the anova, to obtain the critical value of the Studentised Range statistic.

⁷⁴ I use the test for slopes differences proposed by Cohen and Cohen in 1975 which is been used also in Sloper (2013).

Chi-square goodness of fit test

Chi-square goodness of fit tests are used in the attempt to fit a statistical model to observed data or to compare the similarity of observed values to hypothesised values (Leeper, 2006). I use this to test the study of effectiveness to observe whether the distribution of UPS students' ESCS values is similar to that at LS level among the categories of transition process.

The chi-square goodness of fit test has the following hypotheses:

H_0 : The data is consistent with the hypothesised distribution

H_1 : The data is NOT consistent with the hypothesised distribution

The null hypothesis specifies the proportion of observations at each level of the categorical variable and the alternative hypothesis that at least one of the specified proportions is not true.

Additionally I calculate the percentages of the differences between observed and expected frequencies for each ESCS quintile - when the result is equal to zero this means that the differences are null. Furthermore, if the difference is negative it means that there is an underrepresentation of population in this category; while if the difference is positive, it means that there is an overrepresentation of a population in this category.

Quantile Regression

As part of the distributional analysis I investigate whether the use of different processes for the transition to UPS affects the distributions of students' socioeconomic and cultural backgrounds, as well as their achievement. It is hypothesised that the association between the type of transition and the ESCS or the reading scores are not constant throughout their distributions. In particular, it is believed that the effects of the transition process would be unequal when observing the higher and bottom ends of the ESCS and reading score distributions. Consequently, quantile regression (QR) is used to investigate if there is a varying relationship between the transition process throughout the ESCS index and reading score distributions. Moreover, it is hypothesised that by comparing the

combined regression coefficients of the transition process with students' education level (LS or UPS) at different points of the ESCS or score distributions, inferences can be made about the effect, which corresponds to the transition process alone.

I use QR to observe whether the transition process affect the ESCS and reading score distributions. Furthermore, as it is hypothesised that I expect the most important effects at either end of the distributions, the analysis is performed at the 20th, 60th and 80th percentiles. In the analysis I have two dependent variables: ESCS index in the analysis of effectiveness and reading scores in the analysis of efficiency. The independent variables are the interactions between transition process (MAC, MixAC, SBEE and SEE) and education level (LS/UPS). I create interactions between the transition process and education level as I compare their combined and differential effects. In other words, I compare the coefficient results of the transition processes at LS and UPS level to observe shifts in the effect after the transition has been completed at different points of the dependent variables distributions. The 20th percentile would be considered as the bottom end of the distributions, which may represent the poorest from the ESCS and the lowest reading score distributions. The 60th percentile would be used as a reference, while the 80th percentile would be considered as the highest end of the distributions which may represent the richest and highest scorers in the ESCS and reading scores distributions.

QR allows me to evaluate the associations between the predictors on different segments upon the dependent variable distribution. Finally, by estimating the model at a series of segments (percentiles), it is possible to describe a more complete picture of how the associations vary throughout the analysed distribution.

The association between transition processes and the effectiveness and efficiency of the selection is expected not to be constant throughout the ESCS and score obtained by solving distributions. The estimated coefficients of the explanatory variables can then be the function (Yang et al. 2012) (see Annex 1 for more details on the calculation):

$$\hat{\beta}(\tau) = \operatorname{argmin} \sum_{i=1}^n p_{\tau} (y_i - X_i' \beta)$$

The interpretation of the estimates is similar to, but slightly different from, that of ordinary least squares OLS (Buhai, 2005; Koenker & Hallock, 2001 cited in Yang et. al. 2012). In OLS, the coefficient of a specific predictor, X, represents the expected change in the dependent variable that is associated with a unit change in X.

However, the coefficient of X in the τ th quantile can be interpreted as the marginal change (relative to the value of the τ th quantile of the dependent variable) due to a one unit change in X. τ can be specified as any value between 0 and 1 quantiles (0.20, 0.60, and 0.80 in this analysis). I also implement the Wald tests for equality of coefficients across quantiles in order to understand whether the differences in estimates are statistically significant (see Annex 1). Finally, as my models are calculated at the 0.2, 0.6, and 0.8 quantiles, the coefficient in the τ th quantile are the marginal change (relative to the value of the τ th quantile of the dependent variable) due to the change from one transition process to another, represented by the change from LS to UPS.

6.2 The effectiveness of the selection at UPS under different transition processes

This section focuses on the study of the effectiveness of the different processes used during the transition to UPS in Mexico. In section 6.2.1 I compare the socioeconomic composition of students at LS with that of students at UPS under different transition processes. In section 6.2.2 I present a distributional analysis of the ESCS index among LS and UPS students under the different transition processes. For this, I analyse whether the transition processes show differences in the representation of students from the richest and poorest socioeconomic backgrounds. In Section 6.2.3 I analyse whether there are differences in the selection of students by States with similar levels of marginalisation under different transition processes. Finally, in Section 6.2.4 I provide a summary of the most important findings.

6.2.1 The social, economic and cultural differences between lower and upper secondary students

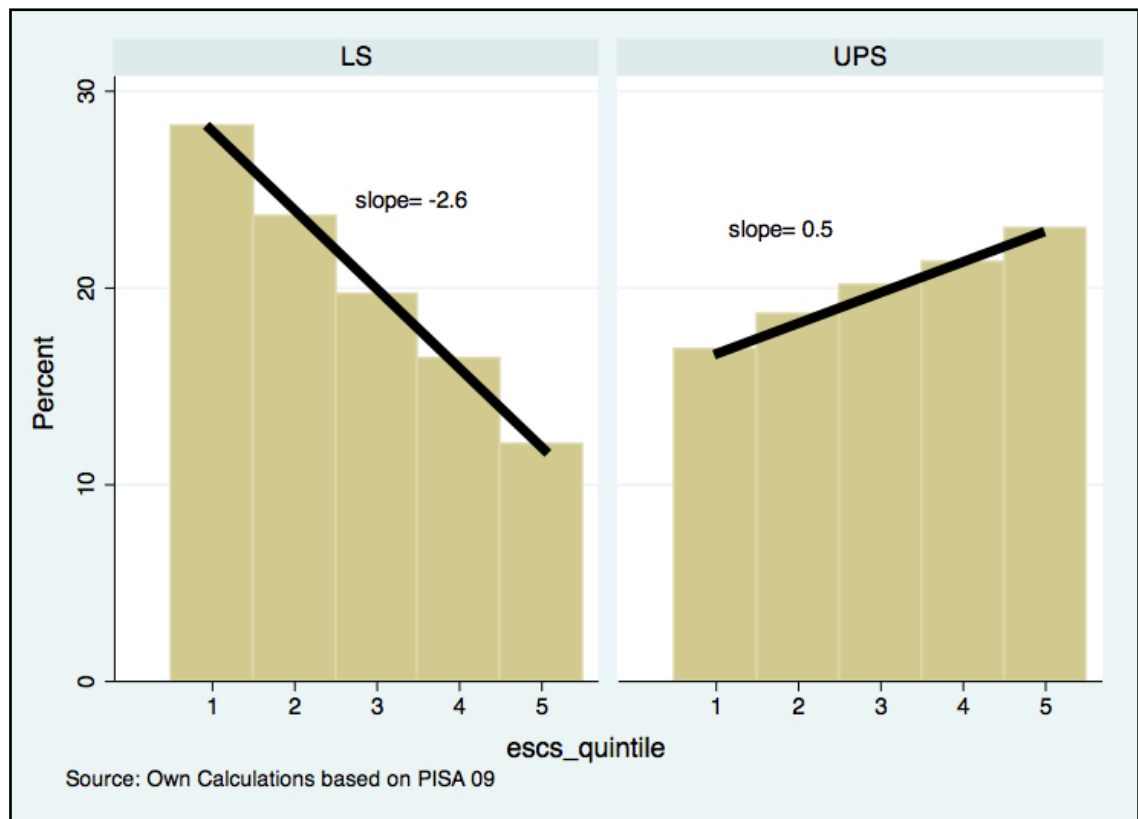
In this subsection I describe the socioeconomic and cultural background differences between LS and UPS students in Mexico and perform an analysis of their observed differences under different transition processes. LS students that attend public schools have an ESCS mean value of -1.63 while their UPS peers that attend public schools also have an ESCS mean value of -1.15. This suggests that UPS students have on average an advantage of 0.48 ESCS points over their LS peers.

Graph 6.1 shows the quintile distribution of the ESCS index by education level where quintile 1 are the poorest students and quintile 5, the richest. The distribution of the ESCS index shows that, at LS level, there is a wider representation of students in the 1st quintile (28 percent) and the representation progressively reduces to 12 percent of students from the 5th quintile. At UPS level, the distribution behaves in the opposite way; there is a smaller representation of students at the 1st quintile (17 percent) increasing up to 23 percent for students in the 5th quintile. That suggests that there is a wider representation of students that come from homes with lower economic, cultural and social capitals at LS than at UPS. The difference in the ESCS index between LS and UPS students is statistically significant (ANOVA weighted sample test = 0.0000, p-value<0.001).

The results observed in Graph 6.1 can be interpreted in the following way. At LS level, where NER is high in Mexico (see Figure 4.3), the representation of students' backgrounds reflects Mexico's own inequalities. As a consequence, we observe a very stratified distribution of students' socioeconomic and cultural backgrounds (slope= -2.6), with a higher representation of students from the poorest quintiles. Conversely, at UPS level the distribution of ESCS shows that students that come from richer backgrounds are more likely to be represented at UPS level. Nevertheless, the distribution is not as stratified as at LS level (slope= 0.5) as the representation difference between those that have the best background conditions and those with the worst conditions is only 12 percent. Therefore, Graph 6.1 suggests that there is a highly stratified distribution of students in LS according to their parents' economic and social capital, whereby a high percentage of those with lower levels of capitals are attending LS school. However, the distribution of

students at UPS according to their parents' social and economic capitals flattens out by means of reduced access to UPS for those students with the lowest levels of these capitals at home. However, with the data I used I cannot observe whether the differences in the ESCS representation are indeed a matter of selection or are due to differences in the choice to continue studying.

Graph 6.1 ESCS quintile distribution

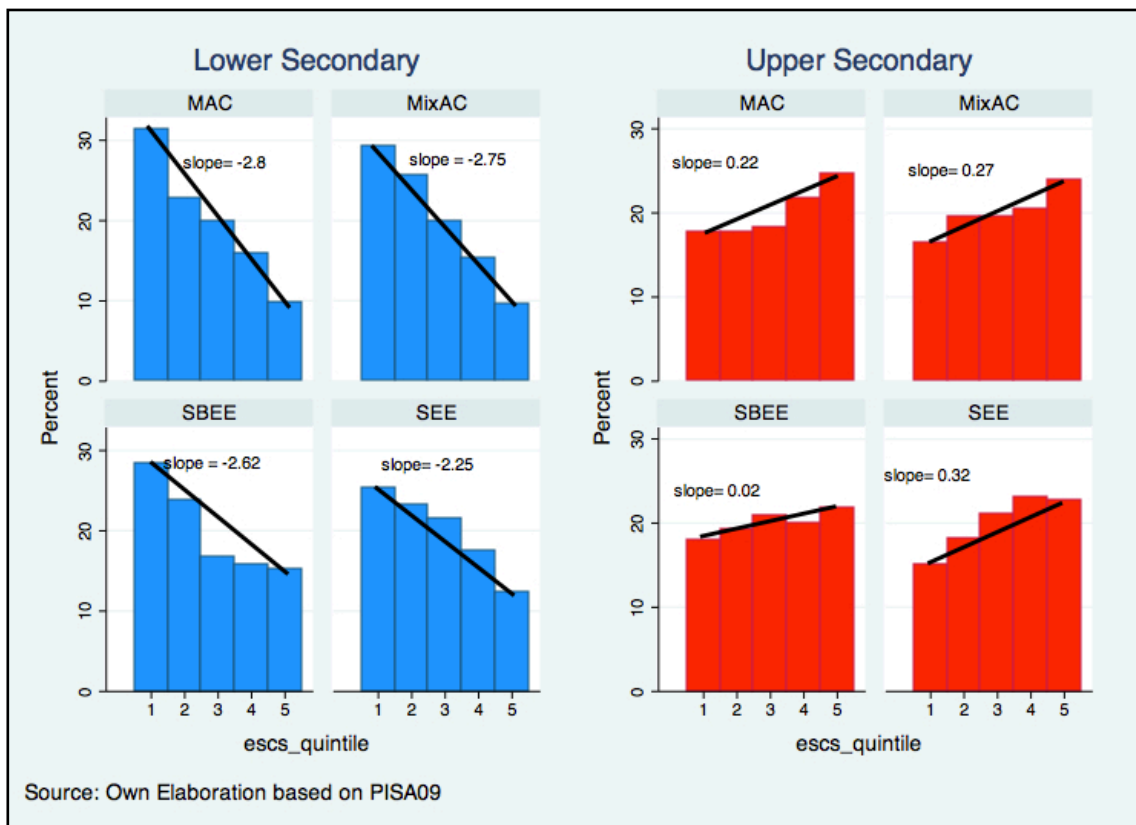


Nevertheless, as the ESCS quintile distribution at UPS level does not resemble the distribution of LS level where enrolment is universal, it is relevant to enquire whether the different transition processes used in Mexico make a difference in the selection of students at UPS level.

I investigated the variations in the socioeconomic and cultural background of students at LS and UPS level under different transition processes. As mentioned before in section 6.1.1 the quintile distribution at LS level is expected to represent the general socioeconomic and cultural conditions of 15 years-olds in Mexico. Therefore making a comparison between LS and UPS secondary ESCS distributions is useful in investigating whether there are differences in the effectiveness of the selection according to the transition processes used where students live.

Graph 6.2 shows the ESCS quintile distribution amongst LS and UPS students by category of transition process. It can be observed that the ESCS quintile distribution varies when ordered by transition process. The gradient lines at LS level continue to be very steep for all transition processes, which can be considered a reflection of the socioeconomic status (SES) conditions of the 15-year-olds sampled. The inclination differences of the gradient lines by transition process suggest that the SES of 15-year-olds at UPS has a few differences that are important to consider. At MAC and MixAC for example, the gradient lines are -2.8 and -2.75 respectively, which suggest a very stratified society with a much larger representation of students that come from the least advantaged social and cultural backgrounds. This is expected as MAC and MixAC include States with very high marginalisation levels (Consejo Nacional de Población, 2011). For example Chiapas and Guerrero (that use MAC) and Hidalgo (that use MixAC) proportionally have 54 percent of the population of 15-year-olds in the first two ESCS quintiles. SBEE transition processes show a slightly different trend, with a more even representation of students that come from the three wealthier quintiles and a high concentration of students in the first two quintiles (slope= -2.62). This is expected again because the States that use SBEE have mostly medium marginalisation levels and above. Therefore even with the presence of Oaxaca and Michoacán, the representation of the wealthiest quintiles is quite even. Finally, the gradient at SEE is -2.25 which is the least steep for LS students. This is explained because the States that use entry examinations, Federal District and Mexico, have high levels of development (Consejo Nacional de Población, 2011) and this is reflected in the SES of their population.

Focusing on enrolment at UPS by transition process and ESCS quintiles, Graph 6.2 shows a wide representation of students from the most advantaged social and cultural backgrounds. In MAC, UPS students have an even representation of the three worst quintiles and a progressively greater representation of the 4th and 5th, which represents a slope of 0.22. MixAC and SEE show a smaller quintile representation of the worst quintiles; therefore, the gradient lines in these two processes have the steeper slopes, 0.27 and 0.32 respectively. Finally, at SBEE the gradient line is the least steep (0.02) showing that the representation of UPS students by ESCS quintiles is almost even.

Graph 6.2 ESCS index by transition process and education level

The results presented in Graph 6.2 suggest that at all transition processes the selection of UPS students privileges students that come from highest socioeconomic and cultural backgrounds. However, when comparing the gradient lines between LS and UPS students, some processes seem to convert the ESCS distribution of LS more than others. Table 6.1 presents the ESCS slopes of each transition process by education level, the difference in the gradient lines between LS and UPS level, as well as whether the difference under each process is statistically significant using the test for slope differences. We can observe that MAC has the largest difference in the distribution of ESCS between LS and UPS students, as the slope difference is 3.095. This is because at LS level MAC shows a very stratified distribution of students by socioeconomic and cultural background; while at UPS the trend goes the opposite way, with a larger representation of UPS students that come from the two highest quintiles. The difference between slopes at LS and UPS level is significant, which suggests that the lack of additional admission criteria may not promote a similar representation of students from the worst SES backgrounds at UPS level.

Table 6.1 ESCS slope differences by transition process and education level

Transition Process	LS	UPS	Slope difference	t-value
MAC	-2.87	0.22	3.09	0.000
MixAC	-2.75	0.27	3.02	0.001
SBEE	-2.62	0.02	2.64	0.000
SEE	-2.25	0.32	2.57	0.005

Source: Own elaboration based on calculations with PISA 09

Table 6.1 also shows that at MixAC, important differences can be found between LS and UPS students with a slope difference of 3.02. LS students in MixAC show a very stratified ESCS distribution (slope of -2.75), while at UPS level there is a progressively wider representation of students that come from wealthier backgrounds (slope of 0.27). MixAC shows the second largest difference in the ESCS slopes between LS and UPS students according to their socioeconomic and cultural backgrounds and the difference is statistically significant. It can therefore be inferred that the most heterogeneous process may not promote equal access and representation of students from different socioeconomic and cultural backgrounds.

The UPS ESCS distribution in SBEE shows the most even representation of students from all backgrounds as it has the smallest slope (0.02). Given that LS students have the most even representation of the wealthiest 3 quintiles, it could be inferred that the use of examinations at some school modalities may serve as a filter for UPS students that come from the lowest quintiles (statistically significant slope difference of 2.6).

Finally at SEE, LS students' ESCS representation is the least stratified with a slope of -2.25, while at UPS level ESCS distribution has the steepest gradient (0.32). However the slope difference is the smallest (2.57) which suggest that SEE may promote small differences in the representation of UPS students' socioeconomic and cultural backgrounds when compared to the distribution of their LS peers. Consequently it possible to suggest that homogeneous procedures with extensive

use of entry examinations may lead to the least background differences between LS and UPS students.

So far I have observed differences in the distribution of ESCS quintiles among LS and UPS students at each transition process. Results suggest important differences in the distribution of students according to their socioeconomic and cultural backgrounds between LS and UPS in different transition processes. To test if these differences are relevant and statistically significant I use a chi-square goodness of fit test (see Table 6.2).

Table 6.2 shows the ESCS expected quintile proportions of UPS students if they were the same as LS students at each transition process (columns B), the expected frequencies of ESCS quintile of UPS students (column C), the observed or actual frequency of UPS students (column D) and the calculation of the difference in the expected and observed proportions by process of transition (column E). The latter difference shows which transition process seems to modify the quintile distribution of social background more, once UPS students complete the transition.

Table 6.2 shows that there are statistically significant differences between LS and UPS students' socioeconomic background at all transition processes, as the p-values of the chi-square goodness of fit tests are equal to zero. The difference presented in columns E shows that in all transition processes the quintile representation of UPS students is different from their LS peers, with the only exceptions being the 3rd ESCS quintile at SEE and the 3rd quintile at MAC and MixAC, with an underrepresentation of 3 and 9 percent respectively. This suggests that UPS students with middle socioeconomic and cultural backgrounds may be the most likely to have a representation that closely aligns to the 15 year-old population reference group (LS) with the same ESCS conditions. It highlights that SBEE is the only transition process that shows overrepresentation at the 3rd quintile (23 percent). This result is associated with the outcome presented in Graph 6.2, where the SBEE transition process showed a small and even representation of the three wealthiest quintiles at LS level.

As the differences in the first quintiles are in all cases negative, it is confirmed that there is an underrepresentation of UPS students that come from the poorest social,

economic and cultural backgrounds. This underrepresentation is substantial as more than 40 percent of UPS students may not be represented (43% in MAC and MixAC). Interestingly, MAC and MixAC processes, which have the largest concentration of poor students at LS level, also have the largest underrepresentation of students at UPS level, even though there are no additional admission criteria in MAC.

Table 6.2 Chi-square goodness of fit test: ESCS index quintile distribution among UPS students by Transition Process

Transition Process	ESCS Index				
	Quintile (A)	Expected percent (B)	Expected frequency (C)	Observed Frequency (D)	Difference (E)
MAC	1st	31	1805.44	1,034	-0.43
	2nd	23	1339.52	1,033	-0.23
	3rd	20	1164.80	1,062	-0.09
	4th	16	931.84	1,263	0.36
	5th	10	582.40	1,432	1.46
	chisq(4) is 1765.92, p = 0				
MixAC	1st	29	1313.99	748	-0.43
	2nd	26	1178.06	882	-0.25
	3rd	20	906.20	885	-0.02
	4th	15	679.65	931	0.37
	5th	10	453.10	1,085	1.39
	chisq(4) is 1292.91, p = 0				
SBEE	1st	28	2547.72	1,640	-0.36
	2nd	24	2183.76	1,749	-0.20
	3rd	17	1546.83	1,898	0.23
	4th	16	1455.84	1,823	0.25
	5th	15	1364.85	1,989	0.46
	chisq(4) is 867.71, p = 0				
SEE	1st	25	2055.75	1,243	-0.40
	2nd	23	1891.29	1,500	-0.21
	3rd	21	1726.83	1,728	0.00
	4th	18	1480.14	1,891	0.28
	5th	12	986.76	1,861	0.89
	chisq(4) is 1290.88, p = 0				

Source: Own elaboration based PISA 09 and the expected quintile distribution that LS students have at each transition process

Results from Table 6.2 also show an overrepresentation of students from the highest social, economic and cultural backgrounds at UPS level. This overrepresentation is particularly high at MAC, where the richest quintile may be 146 percent overrepresented, followed by MixAC (139 percent overrepresented), SEE (89 percent overrepresented) and SBEE (46 percent overrepresented).

Overall, I can summarise results from Table 6.2 as follows:

- (i) SBEE transition processes seem to have the most similar representation of UPS students' socioeconomic and cultural backgrounds when compared to the reference group. The result suggests that heterogeneous procedures and entry examinations may allow the most similar representation of students' socioeconomic and cultural backgrounds.
- (ii) MAC transition process, with homogeneous procedures and no additional admission criteria, seems to allow the largest differences between reference group and UPS students.
- (iii) There is little variation on the pattern of over and underrepresentation of students at UPS level compared with the reference group of 15 year olds at LS at each transition process.

Taken together, these results suggest the need for further investigation into the associations between the different transition processes and the distributional changes of students with the worst and best ESCS background conditions. In addition, potential differences between States that have different transition processes could be investigated. Consequently, the following two subsections will focus on firstly, the relationship that transition processes may have with distributional changes of ESCS and secondly, differences in the effectiveness of the transition process for States with similar levels of marginalisation.

6.2.2 Distributional analysis of ESCS index under different transition processes

In the methodology design I suggest that is relevant to observe the ESCS differences at the top and bottom tails of the distribution. That is because the transition processes are more likely to affect the representation of students with the highest and lowest socioeconomic and cultural backgrounds (Bracho et al.

2004). In this subsection, I further study whether there are changes in the proportions of poor and wealthy UPS students when compared to LS students used as reference group at each transition process. As previously stated, the rationale for this analysis is that, at more selective transition processes, poor students may be less likely to be represented than at processes that use no admission criteria. The analysis is divided into three parts. Firstly, I analyse the distributional changes of the wealthiest students under the different transition processes. Secondly, I study the changes in the representation of the poorest students by transition process. Finally, I use QR to observe if there are differences in the combined parameter transition processes and education level (interaction LS/UPS and transition process) at the higher and bottom ends of the ESCS distribution.

6.2.2.1 Changes in the representation of the wealthiest

In the previous section I provided evidence that all transition process seem allow for an overrepresentation of the wealthier ESCS quintiles at UPS level. In this subsection I further explore whether there are relevant differences in the representation of the wealthiest students under different transition process by comparing the distributional changes in their representation. To do so I select the 20 percent highest ESCS of LS and UPS students separately and compare the differences in their representation.

Table 6.3 presents the results for the representation of the wealthiest students at LS and UPS. Column A shows the total number students (LS and UPS) by transition process. Column B shows the number of students that have the highest 20 percent of ESCS at each transition process. Column C calculates the proportion of the wealthiest students in LS and UPS. Column D contains a weighted estimation of the total population of the wealthiest students at either LS or UPS in Mexico at each transition process.

In Table 6.3 we can observe that the richest 20 percent of LS students (Column C) represent 20 percent of the LS population at MAC, 19 percent at MixAC, 21 percent at SBEE and 21 percent at SEE. The results show that at LS level the representation of the richest students is proportionally the smallest at MixAC, followed by MAC, SEE and SBEE. For students at UPS level, the results show that MAC has 23 percent

of rich students at UPS level while the rest of the processes contain 20 percent of rich students.

Table 6.3 The wealthiest students by transition process and education level

Transition process	Education level	Total Students (A)	The wealthiest total number (B)	The wealthiest (percentage) (C)	Total Population based on weighted estimation (D)
MAC	LS	2,631	523	19.88	14,873
	UPS	5,259	1,197	22.76	18,612
	Total	7,890	1,720	21.80	33,484
MixAC	LS	1,347	256	19.01	13,927
	UPS	3,751	737	19.65	15,623
	Total	5,098	993	19.48	29,550
SBEE	LS	2,450	521	21.27	27,424
	UPS	7,996	1,563	19.55	40,118
	Total	10,446	2,084	19.95	67,542
SEE	LS	3,444	721	20.93	46,412
	UPS	7,324	1,444	19.72	56,076
	Total	10,768	2,165	20.11	102,488

Source: Own calculations based on PISA09.

Comparing the representation differences between LS and UPS, we observe that the representation of the wealthiest students in MAC seem to increase 2.88 percent points and 0.64 percent points in MixAC. Conversely, the proportional representation of the wealthiest students decreases in SBEE and SEE 1.72 and 1.22 percent points respectively. These results suggest that MAC allows the greatest proportion of rich students at UPS level, as it is where the representation of rich students increases the most when compared to the LS reference group.

The differences in the representation of the 20 percent highest ESCS values are significant when tested using the ANOVA weighted sample test. Nevertheless, it is relevant to observe if at population level these differences are relevant. Hence, I

analyse how the representation of wealthy students varies in population numbers by using sample weights to estimate the actual numbers of wealthy students at each transition process. It is worth remembering that PISA's 09 sample intended to give all 15 year-old students an equal probability of selection and therefore equal weight (in the absence of school and student non-response). Notwithstanding that students in Mexico's sample were chosen randomly, the selection probabilities of the students vary. PISA suggests that their calculated weights should be incorporated into any analysis undertaken to ensure that each student represents appropriately the correct number of students in the full population of 15 year-olds (OECD 2009b). Including such weights is particularly relevant because they are meant to make the sample able to represent every sector of the school population, which includes education level and type of school.

With MAC the increase of 2.88 percent points in the representation of rich students translates to whereat UPS 3,739 more rich students can be found than at LS, while in MixAC 1,696 more rich students can be found than at LS. On the contrary, in SBEE the reduction of the representation of rich students at UPS in 1.72 percent points translates to 12,693 more rich students at UPS than at LS. Furthermore, in SEE the proportional reduction of wealthy students in actual numbers shows that 9,663 more rich students can be found at UPS than at LS. The results suggest that if the weighted representation of students is not considered the analysis of proportional representation of rich students may be misleading.

As the amount of students that live in States that use SBEE or SEE is greater than in MAC or MixAC, the results suggest that, in actual numbers, the increase in the representation of rich students at MAC is not as important as the fact the number of rich students increases in SBEE, even when proportionally their representation seem to be reduced. Therefore, the weighted difference in the representation of the richest students suggests that at all processes after the transition, the amount of rich students increases, but in places with the most extensive use of examination (SEE and SBEE) the numbers of rich students increases proportionately the most.

6.2.2.2 Changes in the representation of the poorest

In this subsection I observe whether there are differences in the representation of the poorest at each transition process. Similar to the analysis for wealthy students,

Table 6.4 presents results for the representation of the poorest. The results show that at LS level (reference group) the representation of the poorest students is proportionally the smallest at SEE, followed by MixAC, SBEE and MAC. At UPS level the greatest proportions of poor students are located at SBEE followed by MixAC, MAC, and SEE.

Table 6.4 The poorest students by transition process and education levels

Transition process	Education level	Total Students (A)	The poorest Total number (B)	The poorest (percentage) (C)	Total Population based on weighted estimation (D)
MAC	LS	2,631	597	22.69	26,225
	UPS	5,259	1,059	20.14	18,036
	Total	7,890	1,656	20.99	44,260
MixAC	LS	1,347	252	18.71	14,401
	UPS	3,751	766	20.42	17,324
	Total	5,098	1,018	19.97	31,725
SBEE	LS	2,450	501	20.45	37,186
	UPS	7,996	1,694	21.19	41,182
	Total	10,446	2,195	21.01	78,368
SEE	LS	3,444	613	17.80	39,680
	UPS	7,324	1,304	17.80	43,999
	Total	10,768	1,917	17.80	83,678

Source: Own calculations based on PISA09

The analysis of the changes in the representation of poor students shows that at MAC their representation reduces the most (2.5 percent points less) while in SEE their representation is virtually the same. In addition, the representation of poor students increases in MixAC and SBEE in 1.7 and 0.7 percent points respectively. The results suggest that the more extensive the use of examinations is, the more effective the selection as the representation of the poorest is more similar to the reference group.

When using the sample weights to calculate actual numbers of poor students at each transition process, we observe that MAC has 8,188 less poor students at UPS than at LS. On the contrary, MixAC has 2,922 more poor students at UPS, SBEE 3,995 more poor students and SEE 4,319 more poor students than in the reference group. Therefore, as the actual numbers of poor students that are enrolled at UPS increases more at processes that make use of entry examinations to some extent, it can be inferred that extensive use of examinations does not necessarily negatively affect the representation of students from the worst socioeconomic and cultural backgrounds.

Overall, the results of the distributional analysis for the wealthiest and poorest students' representation by transition processes suggest the following: (i) The representation of rich UPS students seems to increase in MAC and MixAC while at SBEE and SEE their proportional representation decreases when compared to LS students. Nevertheless, in absolute numbers the representation of UPS rich students increases at all transition processes. (ii) The representation of UPS poor students seems to reduce in MAC when compared to the reference group. Conversely, the representations of poor students seem to increase in MixAC and SBEE, while in SEE their representation is virtually the same. In absolute numbers the results sustain, as the representation of poor students is only reduced at MAC. (iii) The results suggest that the lack of additional admission criteria does not seem to have a positive effect on the effectiveness of the selection. Conversely, processes that use entry examinations seem to improve the representation of poor students at UPS, which may support the effectiveness of the selection.

I will further enquire the effects of the transition processes on the distributional chances of students reading scores using QR.

6.2.2.3 The effect of the transition process on the distribution of the ESCS index

I further study the effectiveness of the selection by analysing the differences in the distribution of ESCS background amongst the LS reference group and UPS students at different transition processes. For this I perform QR analysis that, as explained before, does not calculate the constant at the mean, but allows me to measure the association between transition processes and students' ESCS index distribution at

any chosen percentile. I perform QR for the bottom 20th, the middle 60th and the top 80th ESCS percentiles. This means that I analyse the bottom and highest ends of the ESCS distribution, while I use the middle of the distribution as reference. It is important to mention that for this analysis I standardised the ESCS index by scaling it evenly so that the interpretation of results is simpler.

With the use of cut off points in the regression analysis I expect to observe whether there are differences in the interacted effect of LS/UPS level and transition process on the ESCS distribution, particularly for the worst and best ends. The analysis is performed as follows. I compare LS and UPS coefficients under each transition process. In such comparisons, LS effects are seen as the status quo of 15-year-olds' background according to the particular conditions that prevail at each transition process. Therefore, the differences in interaction effect at UPS level when compared to the effects of LS, may suggest something about the process of transition. It is hypothesised that if a stronger effect is found at the 80th percentile than at the 20th among UPS when compared to LS levels, the transition process may not be effective in selection. This is because the transition has a stronger effect in the representation of the students from the wealthiest backgrounds. On the contrary, if in the comparison between LS and UPS interactions by transition process, the stronger effect is found at the lowest end of the ESCS rather than at the 80th percentile it can be inferred that the transition process is being effective because the major effect would be found for those from the poorest ESCS. Additionally, I compare the magnitude of the coefficients by transition processes, to study which transition has the strongest effect on the representation of students from the wealthiest and poorest socioeconomic and cultural backgrounds.

The coefficient results of the interaction effect of transition process and education level are presented in Table 6.5. It can be observed that stronger effects are found at UPS than at LS level in all transition processes. This suggests that, as expected, the ESCS distribution would be affected more at UPS level as a result of the type of transition process used while LS level the coefficients would show the status quo socioeconomic background of 15 year-olds at each transition process, therefore showing smaller variations.

The coefficients of MAC transition processes show very interesting results. At LS level, MAC has the stronger negative effect at the 20th percentile of ESCS, which confirms that there is higher representation of 15 years-old with the lowest ESCS values. Nevertheless, at UPS level MAC is associated with the strongest positive effect at both the 60th and 80th percentiles (0.615 and 0.689, respectively) while it only has negative effects at UPS for the 20th percentile. Consequently, it can be inferred that MAC not only strongly affects the representation of students with the highest socioeconomic and cultural backgrounds but also has a negative effect in the representation of students from the lowest socioeconomic backgrounds. This suggests that the lack of admission criteria may not promote effectiveness in selection.

Table 6.5 Quantile regression coefficients of ESCS index based on the interaction between type of transition process and education level at the 20th, 60th and 80th percentile

Interacted variable: Transition process and Education Level	Percentile 20th (0.20)	Percentile 60th (0.60)	Percentile 80th (0.80)
MAC_LS	-0.131*** (0.036)	0.022 (0.032)	0.057 (0.027)
MAC_UPS	-0.128*** (0.049)	0.615*** (0.021)	0.689*** (0.027)
MixAC_LS	-0.109 (0.077)	0.032*** (0.035)	0.048*** (0.028)
MixAC_UPS	0.23*** (0.081)	0.325** (0.048)	0.468** (0.064)
SBEE_LS	-0.057* (0.044)	0.001*** (0.029)	0.103 (0.056)
SBEE_UPS	0.213*** (0.042)	0.008* (0.032)	0.567*** (0.003)
SEE_LS	0.028*** (0.005)	0.097*** (0.031)	0.092*** (0.026)
SEE_UPS	0.321*** (0.003)	0.572*** (0.026)	0.574*** (0.029)
Constant	-1.063	-0.172	0.486

Source: Own elaboration based on quantile regression analysis including sample weights.

The ESCS index, dependent variable is standardised and has a mean of -0.0002 and SD of

1. Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% respectively.

Standard errors are reported in the parentheses

The combined effects of MixAC and UPS education level are shown to have the least variations when comparing them at the different cut off points of the ESCS distribution. In addition, at UPS level, MixAC is associated with the smallest effect at the highest end of the distribution, which suggests that after the transition is completed, MixAC is the process that least increases the representation of rich students.

At LS level SBEE shows the strongest effect at the 80th percentile, which suggest that the 15-year olds in the process have the strongest representation of rich students. This effect at UPS level prevails as a strong positive effect is found for the representation of students with the highest ESCS values. At LS, SEE's strongest effect was found at the 60th percentile while at UPS level the effect is stronger at the 80th percentile (this effect is very similar to the 60th percentile). Additionally, the effect of SEE at the lowest cut off point of the ESCS is the strongest among all transition processes, which suggests that the marginal effect of SEE is associated with the most important positive effects in the representation of students with the poorest ESCS.

Overall the results of the distributional analysis suggest that: (i) The lack of admission criteria with homogeneous procedures does not improve the representation of students from the lowest socioeconomic backgrounds. On the contrary, MAC shows the strongest positive effect in the representation of students with the highest ESCS values. (ii) The process that has most extensive use of examinations, SEE, seems to be the most effective as shows the strongest positive effect in the representation of students with the lowest ESCS values. (iii) MixAC was found to be the process that the least increases the representation of rich students. (iv) Overall, the findings contradict the assumptions that guided the chapter. Nevertheless, it is believed that the characteristics of the States where students live play an important role in the explanation of the results. Therefore, the effect that level of marginalisation of the State where students live is included in the analysis below.

6.2.3 The State effect on the effectiveness of the UPS selection under different transition processes.

In this subsection I compare the differences between the socioeconomic and cultural backgrounds of LS and UPS students and enquire whether the differences can be associated with the type of selection used in the transition to UPS level and the characteristics of the State in which students live. To classify States according to their characteristics I use the five levels of marginalisation by CONAPO (see Chapter 3 for more information).

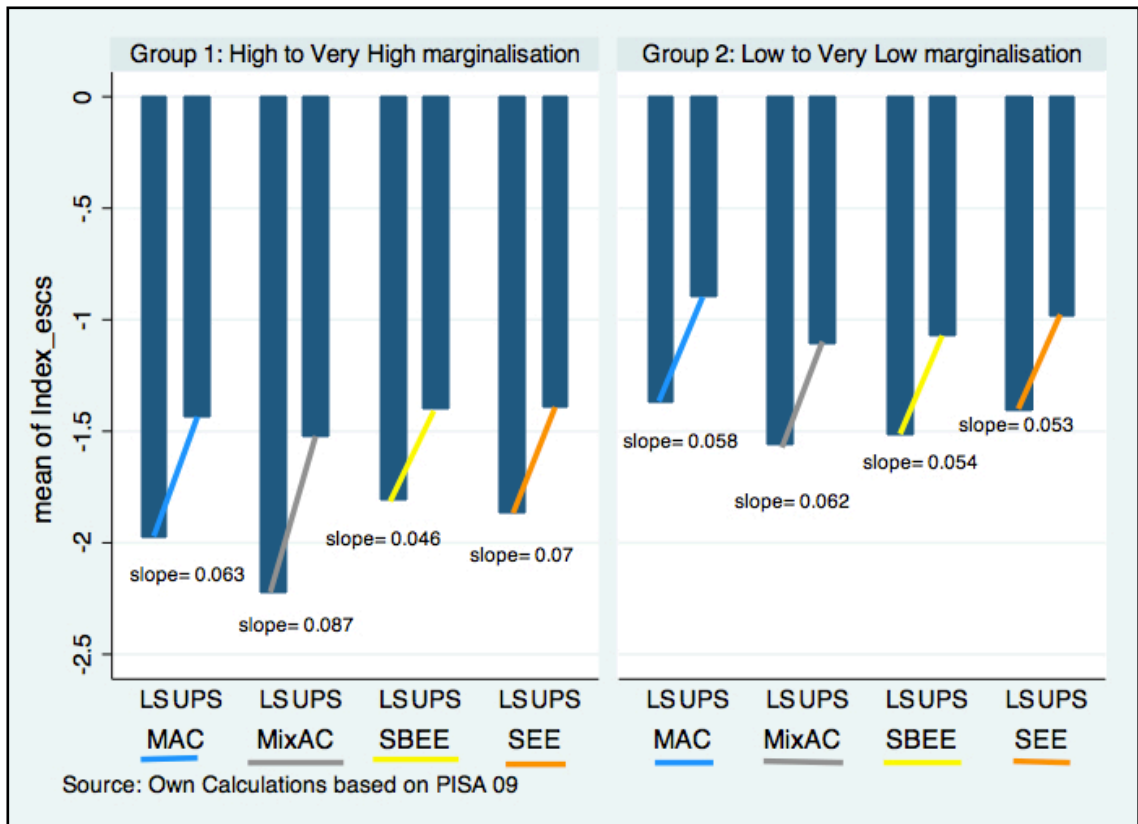
The analysis starts by comparing the ESCS mean values of the LS reference group of 15 year-olds and UPS students under different transition process, subdivided by the level of marginalisation of the State where the students live. Since the most radical ESCS variations are found among the States with contrasting levels of marginalisation, the first focus of the analysis is to observe the ESCS differences between States with high and very high levels of marginalisation (group 1) and States with low and very low levels of marginalisation (group 2) (see section 6.2 for more information on the States than compound each group).

Graph 6.3 shows the mean ESCS index value of LS and UPS students for States grouped by level of marginalisation (Group 1 and Group 2) by transition process. The gradient lines in colours highlight the differences between in the mean ESCS values of LS and UPS students. The gradient lines are colour coded: the bright blue lines shows the gradient difference between LS and UPS students at MAC, the grey lines the differences between students at MixAC, the yellow lines the differences at SBEE and the orange lines the differences between LS and UPS students at SEE. The graph is analysed in the following way: I analyse the gradient differences between LS and UPS students at each transition process by marginalisation group, also, I compare the gradients by transition process between groups of marginalisation.

As expected, Graph 6.3 shows that the ESCS mean values are considerably worse for Group 1, which is understandable as students that live in poorer States are more likely to have lower socioeconomic and cultural capital in their homes (Davies et al. 2008; Konečný et al. 2012; Roeser et al. 2000). Additionally, the gradient lines that show the ESCS mean value difference between LS and UPS students by transition process are steeper amongst Group 1 than amongst Group 2.

It can be argued that in richer States there is a smaller selection based on the background of students. This is because in Group 2 the ESCS values of students are higher anyway; thus if the selection makes a difference it may not be large. The only exception for this is the SBEE transition process where the slope of ESCS difference between LS and UPS students seems to be steeper for Group 2 (.055) than Group 1 (.046). This case will be analysed separately below.

Graph 6.3 Mean ESCS index value under different transition process by States' level of marginalisation and education level



In Group 1, the gradient of ESCS mean value at MixAC is the steepest (0.087), followed by SEE (0.07) and MAC (0.067). Conversely, in Group 2 the gradient line is the steepest at MixAC (0.62) followed by MAC (0.058), while SBEE and SEE have a very similar gradient lines, 0.054 and 0.053). This suggests that the most mixed processes are the greatest filter of the socioeconomic and cultural capital amongst students that live not only at the poorest States but also at the richest States. There are two possible explanations for this. The first one is that in a heterogeneous transition process where students may need to apply to different schools and would not easily know where they will be requested to sit an exam, the cultural

support from home becomes crucial to a successful transition. The second possible explanation is that as LS students' ESCS mean values in MixAC are the worst both in Groups 1 and 2, the differences between LS and UPS students seem greater. Nevertheless, as the gradient differences between LS and UPS students are the steepest at MixAC in both marginalisation groups it is likely that the first explanation holds. Therefore, it appears that in the most heterogeneous processes that have entry examinations to some extent (MixAC) students may need more support to complete a successful transition to UPS, ergo the students that complete the transition seem to have higher socioeconomic and cultural backgrounds.

Additionally, it can be observed in Graph 6.3 that in Group 1, SEE shows the second greatest gradient line while in Group 2 the smallest. This suggests that the extensive use of examinations may serve as more of a filter in poorer States than in richer States. Students that live in the States with the highest levels of marginalisation may need to have stronger social and cultural capital to be able to be selected in a competitive transition process.

Regarding MAC, it can be observed in Graph 6.3 that even though the ESCS mean values are better in Group 2, the gradient line that shows the difference between LS and UPS students remains very similar for the two groups, 0.063 at Group 1 and 0.058 at Group 2. It can be assumed that in a process with no additional admission criteria and homogeneous procedures, the selection at UPS level remains stable regardless of the level of marginalisation where students live. Therefore, the lack of entry examination may allow for social selection to be the criteria that defines the background characteristics of the students that will make a successful transition.

Finally, Graph 6.3 shows that SBEE presents a counterintuitive outcome. As mentioned before, a SBEE transition process is the only process where the difference between LS and UPS students is steeper at States with very low to low level of marginalisation. In other words, UPS students at rich States show on average 1 point ESCS difference with respect to the LS reference group, while UPS students living in poorer States show on average half an ESCS point. The outcome suggests that UPS students that live in low to very low marginalisation States experience a greater social selection than their peers that live in high to very high marginalised States. A possible explanation is that the amount of schools that

require entry examinations at States in Group 2 are likely to be more than in Group 1, as there is a relatively wider presence of the school modalities that require examinations (see appendix of Chapter 4). If proportionally a greater amount of the modalities that request examinations are present in the State in which students live, that may be associated with slightly higher degrees of social selection.

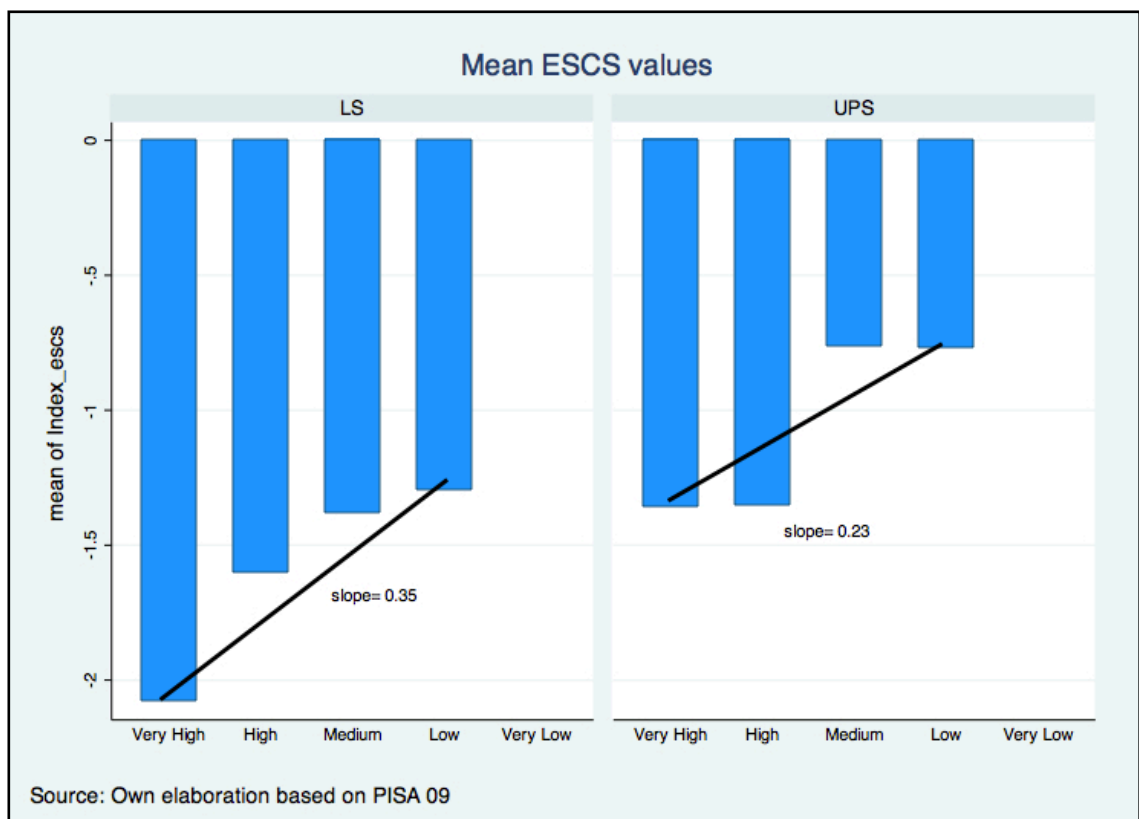
To further analyse the relationship that the characteristics of States' have with the effectiveness of the selection at UPS level under different processes of transition, I analyse separately the ESCS differences between LS and UPS students at each transition process. The following Graphs 6.4, 6.5, 6.6 and 6.7 show the ESCS mean values of LS and UPS students at each transition process ordered by States' levels of marginalisation. The objective in presenting the data this way is to obtain a more insightful picture of the effectiveness of UPS selection. The analyses use the findings of Chapter 5 with regards to particularities of the States and their process of transition to UPS; additionally, where relevant I go deeper into the explanation of results supported by information from certain States.

Graph 6.4 shows the ESCS values of LS and UPS students at MAC ordered by the level of marginalisation in the State in which they live. The LS mean values show that the socioeconomic and cultural backgrounds of students are highly stratified in relation to the level of marginalisation of the States. If we compare LS students with their UPS peers in the same marginalisation level we observe that social capital seems to make a very important difference in the selection at UPS.

Nevertheless, Graph 6.4 shows that the difference between LS and UPS at high levels of marginalisation States is not of great magnitude. This result is due to Campeche, as it is the only State with high level of marginalisation of the group. Campeche is an interesting case because despite having a high marginalisation level, the overall education outcomes are acceptable and the education environment is favourable (for example the lack of teachers' union conflict, the low cost of transition, as well as having a good supply of upper secondary schools). Therefore, it can be inferred that even though the marginalisation of the State is low, the presence of favourable education conditions in combination with the lack of additional admission, may be associated with promoting an effective transition process. For States with very high marginalisation levels, in this case Chiapas and

Guerrero, there is an important decrease in the ESCS mean values of UPS student when compared to their LS peers. This suggests that smaller numbers of students from the poorest social and cultural backgrounds are enrolling at UPS. These States have unfavourable education conditions (the worst educational indicators as well as constant conflict with teacher unions) which may be the reason why the lack of examinations do not seem to generate effective selection.

Graph 6.4 Mean ESCS index at MAC by education Level

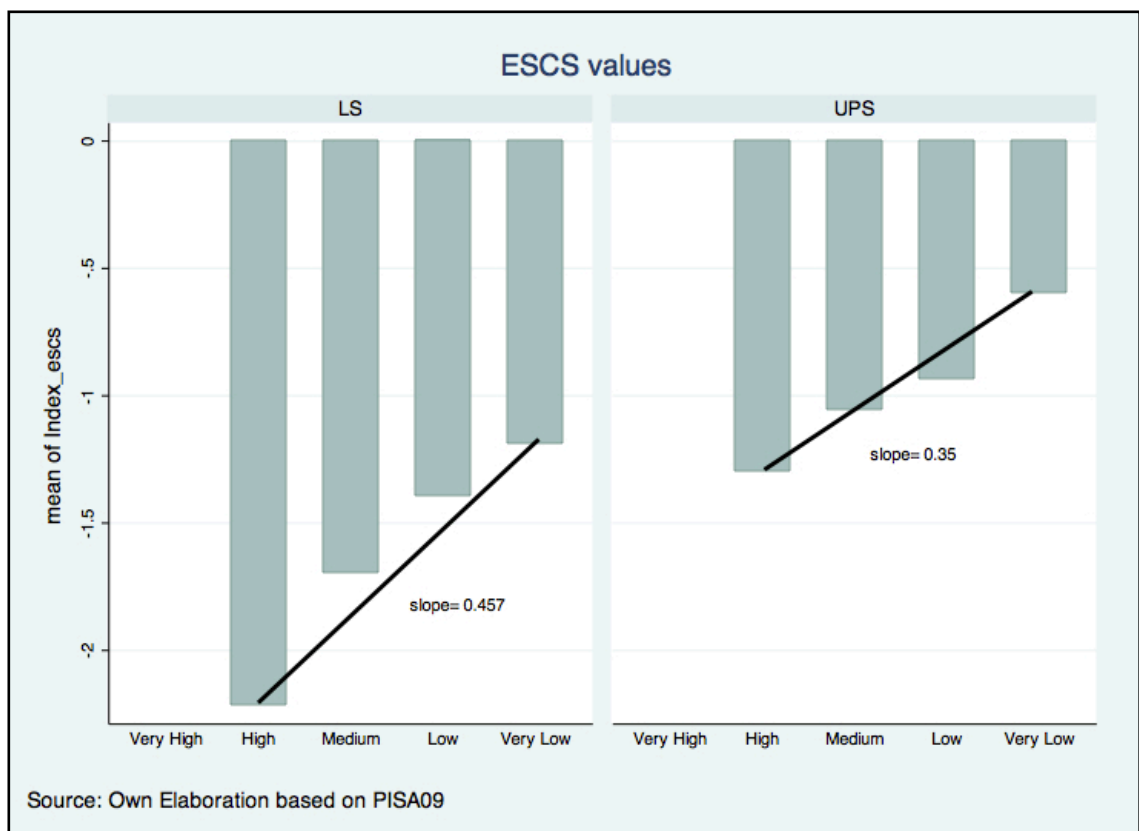


The results of the analysis by State suggest the following findings about the selection in MAC. MAC appears to make a relatively effective selection at States with high marginalisation levels when it is supported by favourable education conditions. Nevertheless, for the rest of the States with medium and very high levels of marginalisation, the gap between LS and UPS remains constant. The results support previous results in this chapter that pointed to the fact that in MAC, social selection continues to be a very important filter in the transition to UPS level regardless of the lack of additional admission criteria.

Graph 6.5 shows that the reference group's mean values at MixAC are highly stratified by the level of marginalisation of the State in which students live. If we

look at the differences between LS and UPS students we observe a reduction of almost one percentage point in the mean value of the ESCS index at States with very high levels of marginalisation. On the contrary, the difference between LS and UPS peers at the richest States show a difference of 0.5 points. Therefore, the selection of UPS students at MixAC is more effective at States with favourable marginalisation as the difference in the socioeconomic background between LS and UPS is progressively smaller when the conditions of the State improve.

Graph 6.5 Mean ESCS index at MixAC by education Level

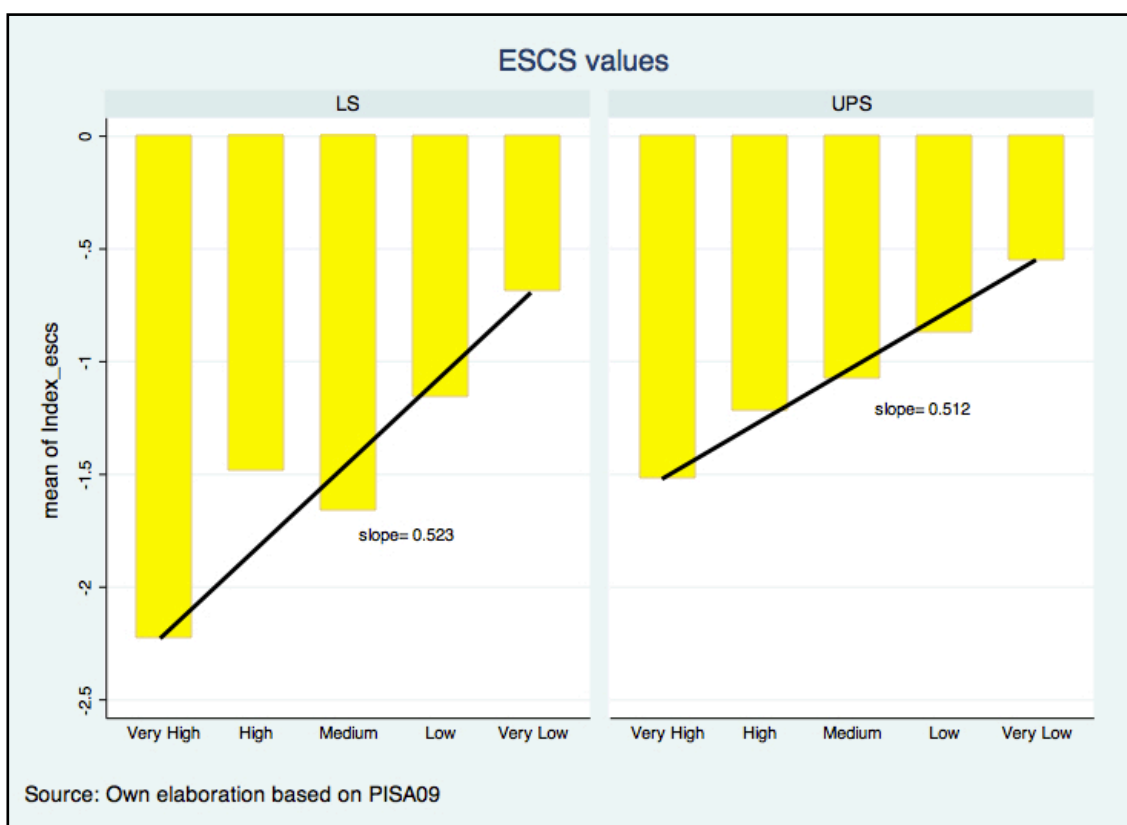


That result prevails when the analysis is done by State. It is also worth mentioning that the characteristics of the States of Coahuila and Durango explain the small differences between LS and UPS level observed at the low and very low level of marginalisation bars. In these two States the population have high levels of education (on average more than 9 years); which suggests the population in these States are more likely to make it to UPS level. Additionally, the favourable education conditions of Coahuila and Durango such as high education attainment and a lack of conflict with teachers unions are believed to play an important role in closing the ESCS gap between LS and UPS students. Therefore, these results suggest that

MixAC may not be an effective process for the selection of students at UPS in the most disadvantaged processes. This result potentially points out that the complexity of having heterogeneous procedures for students that live in the least favourable States.

Focusing now on the SBEE process, Graph 6.6 shows that the ESCS mean values of LS and UPS students seems to be very similar amongst students, except for those that live in States with very high levels of marginalisation. This suggests that, except for Oaxaca (the only State with very high levels of marginalisation), at SBEE the transition process seems to be doing relatively well in having a similar representation of LS students socioeconomic and cultural backgrounds at UPS. This may be because the socioeconomic and cultural background of LS students is not very stratified by levels of marginalisation in these States anyway.

Graph 6.6 Mean ESCS index at SBEE by education Level



When I studied the results by State, I observed that the similarities in the background characteristics of LS and UPS students relating to that States that use SBEE are in those States which have a good amount of UPS schools available and a lack of education conflict (with teachers unions, as explained in the appendix of

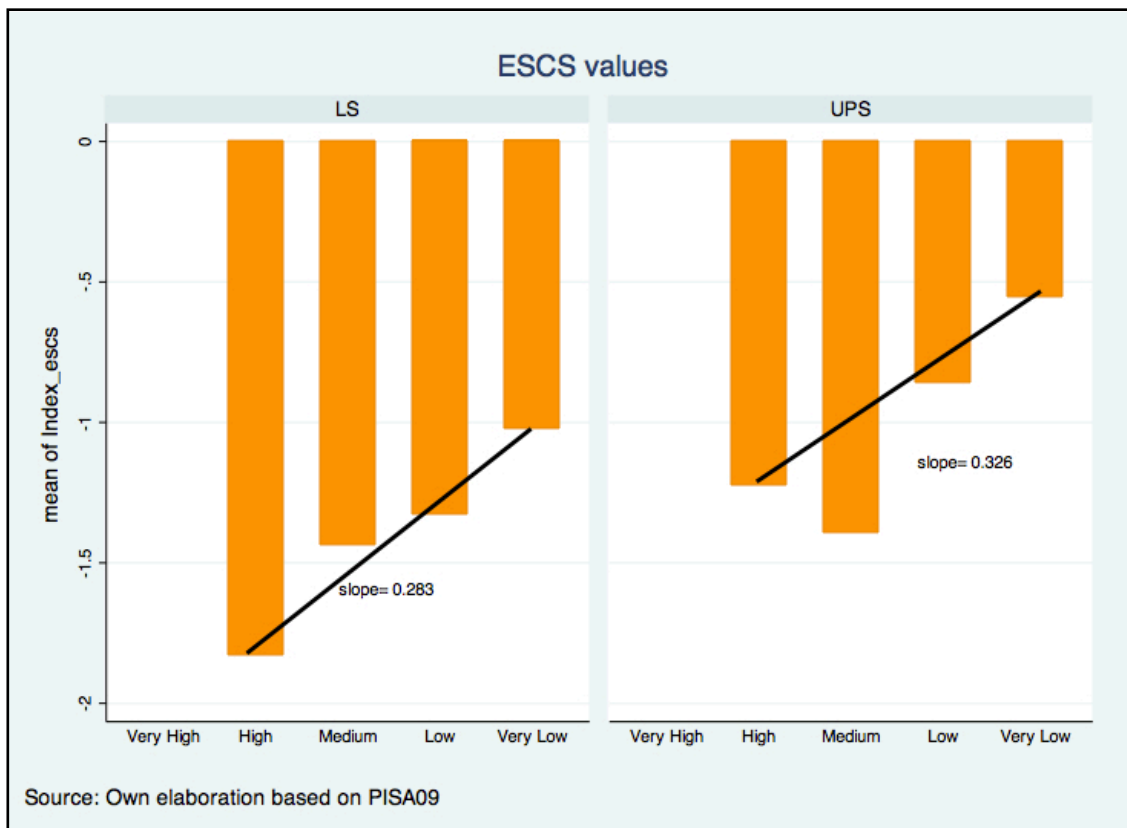
Chapter 5). Hence it is likely that the young population completing LS is making the transition to UPS in a favourable environment, for example with enough UPS schools options. It is worth noting that at SBEE the differences in transition process are by school modality; therefore, it can be expected that students may be able to identify the schools that use entry examinations easier than in MixAC. As a consequence, it not possible to argue that SBEE transition process in itself may be effective.

Finally, in the SEE process, Graph 6.7 shows that the socioeconomic and cultural background of students is highly stratified by the level of marginalisation of the State in which students live. When observing ESCS differences between LS and UPS it seems that UPS students show better mean values at all marginalisation levels. Despite that, the differences between LS and UPS students among middle marginalisation States are very small followed by States with low level of marginalisation.

Furthermore, the analysis by State suggests the following. There are large differences between LS and UPS in highly marginalised States (1 point in ESCS). These differences are explained because in disadvantaged processes students are more likely to have poor performance and few school options available. This is the case of Veracruz and Tabasco. In these processes students from poor socioeconomic backgrounds suffer two filters: social selection and the entry examination to UPS. As a consequence, the ESCS distribution of UPS students in Veracruz and Tabasco is very stratified and students with high ESCS levels are most likely to make it into UPS. In addition, the analysis by State concerning the results of SEE's medium and low level of marginalisation States suggests the following. Chihuahua, Sonora, Quintana Roo and Tlaxcala show relatively small ESCS gaps between LS and UPS students. These States share some favourable education characteristics. They provide proportionally acceptable school options, do not have education conflict and on average the population completes LS level. Most importantly in these States students that are willing to study UPS may compete in a relatively smaller entry examination contest than in other States. This factor may increase the chances of students with low ESCS making it into UPS. Moreover, these States have higher attainment levels (Instituto Nacional para la Evaluación de la

Educación 2009c); therefore, even students coming from low SES are more likely to perform well in entry examinations.

Graph 6.7 Mean ESCS index at SEE by education Level



The lack of variation between LS and UPS at middle level of marginalisation is explained particularly by Tlaxcala (the only State in this category). Tlaxcala is one of the smallest States in Mexico with a relatively small population which is also associated with a good education environment. In Tlaxcala, where the education demand is not under pressure, the entry examination serves as a means of allocation of students, but not as a filter for access. This is the reason why the background representation of UPS and LS students is so similar. Finally, SEE States with low marginalisation levels have higher proportions of students with high ESCS in UPS than in LS (0.7 points difference on average), so the mean composition of the index changed. This is explained because in the most advantaged processes the competition becomes harder; there are higher numbers of applicants and the performance of students is higher and more similar. Therefore, in processes with low levels of marginalisation, students that have the advantage of higher social capital will be more likely to make it into UPS level. Additionally, is important to

consider the cases of the Federal District and Mexico, States with very low level of marginalisation, where the competition to get a place at UPS is not only among students completing LS in the State. In the entry examination contest at Federal District and Mexico, students from neighbour States often participate in order to have access to better quality schools (Perez Torres, 2004). As the amount of applicants often exceeds the places available at UPS (Aboites, 2000), the students selected are filtered by their attainment which privileges students that come from the wealthiest socioeconomic and cultural background.

The results of the analysis of the States' effect on the effectiveness of the selection at UPS under different transition processes suggest the following: (i) The level of marginalisation of the States may mediate how the different transition processes could achieve effectiveness. However, it is not only the level of marginalisation that mediates the transition process selection but the particularities of the States as, for example, the amount of UPS schools available, the level of conflict with teachers unions as well as the education accomplishments, such as NER at UPS level. (ii) In States with middle levels of marginalisation smaller mean ESCS changes are found between LS and UPS students than at either low to very low or high to very high level of marginalisation States. These results suggest that poor and rich States characteristics allow for a greater differential effect of the transition processes on the effectiveness of the selection. (iii) MAC does not seem to be a promoter of an effective selection. In particular, at States with very high levels of marginalisation that use MAC, important ESCS differences are found between LS and UPS students, which suggest that social selection continues to be the filter in the transition to UPS level.⁷⁵ (iii) The selection under MixAC in the most disadvantaged States highlights that the homogeneity of procedure could be considered a bottleneck for effective selection. (iv) The results of SBEE suggest that heterogeneity of procedures and the extensiveness of entry examinations may not lead to a less effective selection; nevertheless it is likely that the particular characteristics of the States that use this process are responsible for the small gaps found between LS and UPS students' ESCS. (v) SEE seem to promote an effective selection in middle and low marginalisation States, but not at highly marginalised and very low level of

⁷⁵ Nevertheless, in MAC the presence of favourable State's conditions (acceptable amount of UPS school, low transition costs and lack of teachers' union conflict) allows for smaller mean ESCS differences between LS and UPS students.

marginalisation States. Again, the reason for the result may be attributed to particular characteristics of the States, meaning the amount of schools available and the demand pressure as the most important ones.

6.2.4 Final remarks on the effectiveness of the different transition processes

The analyses performed regarding the effectiveness of the different transition processes in Mexico provide evidence of 6 main findings. Firstly, the representation of wealthy students at UPS appear to increase at all transition processes, when compared to the representation of the reference group of rich students at LS. However this overrepresentation appears more strongly in MixAC, SBEE and SEE transition processes. As wealthier students are better represented in processes that use entry examinations, it can be inferred that getting into UPS in these more demanding processes is easier for students that have higher levels of income and cultural capital. However at MAC, the representation of wealthy UPS students also seems to improve. Therefore it can be assumed that the representation of rich students may increase at UPS level regardless of the processes used in their selection. Hence the transition to UPS level in Mexico continues to be influenced by the processes of social selection present in all educational transitions (Van der Velden and Wolbers, 2006, Sirsch, 2003, Reyes et al., 2000). Therefore to make it to UPS, students may need to invest more socioeconomic and cultural resources to improve the likelihood of successful transition (Konečný et al., 2012, Hauser and Andrew, 2006).

Secondly, the poorest 15-year-olds seem to be highly underrepresented at UPS; especially in MAC transition processes. The result suggest that students from the poorest socioeconomic and cultural backgrounds are severely disadvantaged, even when they experience a process where no entry examination is used, as well as where the mechanisms and procedures for the transition are homogeneous.

Thirdly, middle class students at UPS level are well represented in all transition processes. The representation of UPS students from the 3rd ESCS quintile in all transition processes is very similar to those seen at LS level. In particular at MAC and SEE, 15-year-olds from the middle classes appear to have equal chances to be represented at UPS level than at LS. It can be assumed that middle class students are highly likely to continue studying to UPS regardless of the type of transition and

selection process used (Nichols et al., 2010). As a consequence, their representation does not vary by the type of transition process used during their selection.

Fourthly, in SBEE and SEE, where entry examinations are used more intensively, UPS students seem to need certain (and similar) social capitals to make it into UPS, compared to other transition processes (MAC and MixAC). Nevertheless, SBEE seems to have a more similar representation of LS and UPS students' backgrounds, even when observing the most marginalised States. SEE, the process with the most extensive use of examinations and homogeneous procedures appears to have the strongest representation of students with the lowest ESCS values when compared to the rest of the processes, particularly amongst middle and low marginalisation States. Therefore, the results suggest that the extensive use of examinations could be effective in contexts where the UPS sector is not under pressure.

Fifthly, MixAC is the process that seems to make the least effective selection at UPS level and is where the greatest differences between the LS reference group and UPS students' backgrounds can be found. This may be associated with the heterogeneity of procedures, as well as related to certain negative characteristics of the States that use MixAC such as constant conflict with teachers' unions.

Finally, MAC presents an interesting case as it is used by some of the poorest States in Mexico. In these States, social selection dictates who makes it to UPS level (Bracho, 1991, Perez Torres, 2004) despite the lack of entry examinations. However, when observing the rest of the States with middle and low levels of marginalisation using MAC it appears that ESCS differences between LS and UPS remain constant. This suggests that social selection could be the most important filter in the transition to UPS within highly marginalised contexts, while the lack of admission criteria and homogeneity of procedures may contribute to the effectiveness of selection where the conditions are favourable.

Overall, extensive use of entry examinations appears to support the effectiveness of the UPS selection. Conversely when observing the processes by their heterogeneity, the findings do not suggest any particular pattern.

6.3 The efficiency of the selection at UPS under different transition processes

In this section I study the achievement differences between LS and UPS students in different transition processes. To do so I use PISA 09 reading exam tests scores. As in the analysis of effectiveness, the reading scores of LS students are considered as a reference of the scores of the relevant age group, as these students have not yet experienced the transition and selection process that the UPS students have.

This section is structured in three subsections. Section 6.3.1 presents the reading score differences among LS and UPS students by transition process. In Section 6.3.2, I present a distributional analysis of the reading scores among LS and UPS students under the different transition processes and study how the selection by transition process influences the selection of the best and worst performers. In Section 6.3.3, I investigate the effect that the State where students live has on the efficiency of the selection of UPS students. Finally, in Section 6.3.4 I summarise the most important results.

6.3.1 The achievement differences between lower and upper secondary students

I expect to find differences between the achievement of LS and UPS students. First, despite all students in the sample having been born in 1993, UPS students would be the youngest of their class while LS students would be the oldest (if they have not repeated). Literature has suggested that there is a relationship between age and students' achievement, where older students tend to have higher achievement by the fact of being more mature compared to their cohort (Hanushek et al. 2003). Second, UPS students not only have one year more of education, but they also have completed the transition, ergo they have been selected. As a consequence UPS students may be likely show higher reading achievement than LS students.

Therefore, it is relevant to clarify that I do not study the differences in LS and UPS students' reading achievement per se. On the contrary, the key aspect in this analysis is to investigate distributional changes in the test scores between a reference group that is in LS, who are the same age as UPS students at the different transition processes used in Mexico.

In regards to the reading scores of LS and UPS students, LS students scored on average 378 points while UPS students scored 447. The SD of the scores is 73.97 for LS and 64.90 for UPS students, which suggests that the scores of UPS students vary less than the reference group. Nevertheless as explained before, the sample sizes of LS and UPS students are different which affects the variance by mean of the different number of observations. To make relevant comparisons I weighted the tests performed. The variance test with different samples suggests that the scores of UPS students do in fact show less variation, suggesting that after the transition to UPS has been completed, the mechanisms used for selection chose students with more similar reading achievement.

Table 6.6 presents general descriptive statistics of students' reading scores by level of education at the different transition process: mean reading scores, minimum and maximum score values at each category, as well as, a calculation of the difference (in percentage) between LS and UPS students' mean scores and SD by transition process. It is worth mentioning that the ANOVA weighted sample tests of the reading scores by categories performed suggest that there are not only significant differences in the mean scores between LS and UPS students, but also those differences are significant by the type of transition process used where students live.

The reference groups score, on average, less than UPS students at all transition processes and their SD is larger when compared to the relevant UPS peer group (Table 6.6). The mean scores of LS students at SBEE is the highest (393 points) followed by SEE (389 average points), MixAC (378 points) and MAC (370 points). These important score differences are believed to relate to the characteristics of the States that compound each transition process. Students at Nuevo León (that use SBEE) as well as in Mexico City, Baja California, and Estado de Mexico (that use SEE) consistently score higher (INEE, 2010). Conversely the worst performers are located in States that use MAC (Chiapas and Guerrero). Additionally, when we observe the S.D of LS students' scores we observe that they are larger at SBEE and SEE followed by MAC; which confirms that the outstanding scores of the States already mentioned define the mean scores of LS students when observed by transition process.

Table 6.6 Reading scores descriptive statistics by education level and type of transition process

Transition process	Education level	Mean reading score	SD	Min Value	Max Value	Mean reading score Diff (%)	SD Diff (%)
MAC	LS	370.17	73.83	99.99	643.84	0.20	-0.13
	UPS	442.54	67.87	201.75	678.99		
MixAC	LS	377.69	70.96	123.11	584.82	0.19	-0.13
	UPS	450.24	63.56	205.68	651.95		
SBEE	LS	393.47	79.28	84.47	644.91	0.14	-0.16
	UPS	448.74	66.68	172.60	671.49		
SEE	LS	388.61	75.44	137.22	634.07	0.18	-0.14
	UPS	457.22	65.21	212.90	716.93		

Source: Own elaboration Based on Pisa09 for students in public schools using sample weights.

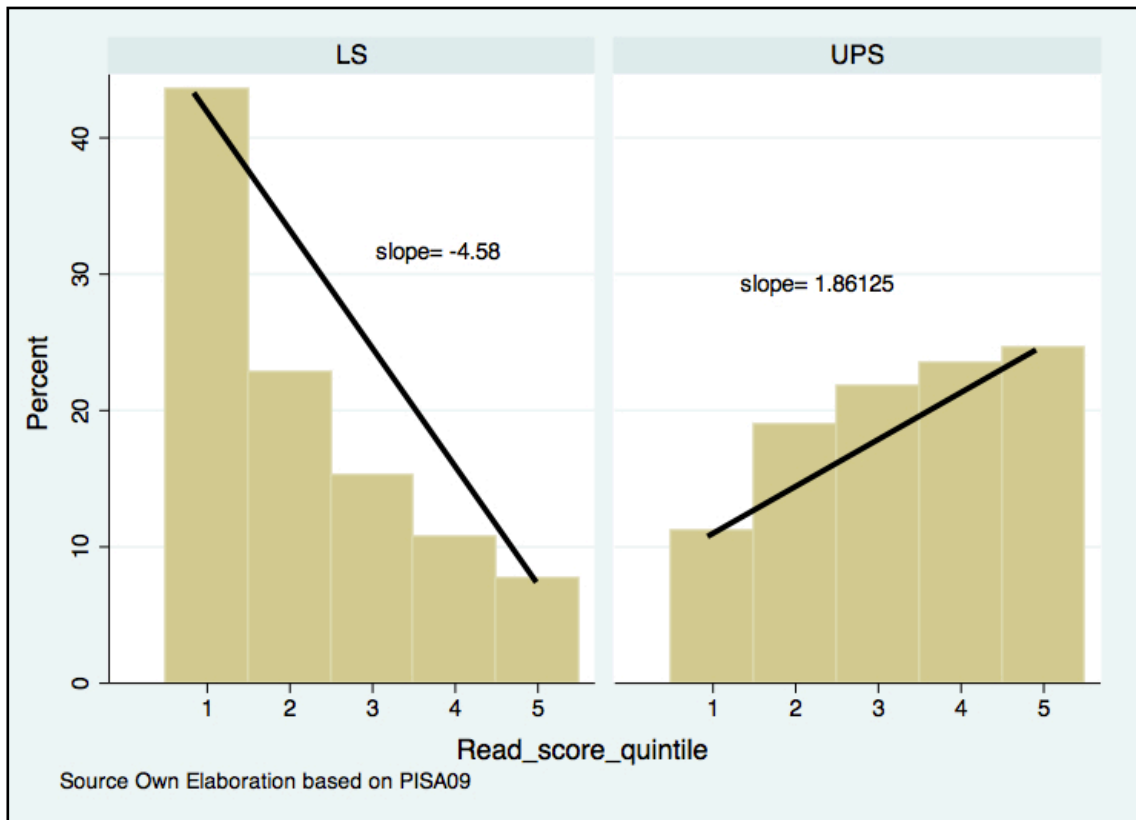
On the contrary, the mean scores at UPS level are the highest amongst SEE's students (457 points on average) when compared to their peers at MixAC, SEE and MAC (450, 449 and 443 points on average, respectively). Regarding the SD of the scores at UPS level, the smallest variation is found at MixAC (64) followed by SEE (65), SBEE (67) and MAC (68). The differences in the mean scores among UPS students show the expected trend were students selected at processes where examinations are used most extensively (SEE) show higher scores than students in other processes.

An interesting observation from Table 6.6 is that the rank of scores according to transition process changed from LS to UPS. In LS, the lowest scores are found MAC, followed by MixAC, SEE and SBEE. In UPS the lowest scores are still at MAC, followed by SBEE, MixAC and SEE. These results indicate the possibility that the transition processes could play a role in the selection of students according to their reading achievement. SEE would be expected to have students with the highest reading achievement at UPS as it is the most selective process; while MAC being the least selective process is likely to have the lowest position in the rank. However, it

is interesting how UPS students at SBEE, the process with the second most extensive use of examinations, seem to worsen their position to such a degree when compared to the reference group. In addition, students at MixAC seem to have improved their position, even though the use of examinations is less extensive. These results suggest that detailed analysis needs to be done to explore the changes amongst MixAC and SBEE which also have heterogeneous procedures.

Table 6.6 presents the difference in the mean scores and SD among LS and UPS students by transition process. At MAC the scores of UPS students are 20 percent higher than their LS peers, while the SD difference between LS and UPS mean scores are reduced. In MixAC the scores of UPS students are 19 percent higher than LS peers, with a reduction of 13 percent in the SD. At SBEE, UPS mean scores represent a 14 percent improvement in the scores while the SD reduces by 16 percent. Finally, at SEE the mean scores of UPS students are 18 percent higher than their LS peers and their standard deviation reduces by 14 percent.

To further investigate the changes in the distribution of scores between LS and UPS students under the different transition processes, I divided the reading scores into quintiles. The quintile score distribution is used to group students with similar reading achievement levels and to observe how the distribution changes at each transition process. Graph 6.8 shows the quintile distribution of reading achievement. Students' quintile distribution of reading abilities is as follows: 44 percent of LS students have scores located in the first quintile (the one with the worst scores); 23 percent in the second quintile, 15 percent in third quintile, 11 percent in the fourth and finally only 7 percent of LS students have scores located in the top quintile. Conversely, at UPS level only 11 percent of students are located in the worst quintile, 19 percent in the second, 22 percent in the third, 23 percent in the fourth quintile and 25 percent in the best reading achievement quintile. This division of scores by quintile only shows how stratified the reading scores are of the reference group at LS and UPS students, which does not necessarily mean that students at UPS level have outstanding levels of achievement.

Graph 6.8 Quintile distribution of reading scores by education level

As expected, Graph 6.8 shows that LS students have a higher representation in the worst quintile of reading scores which makes the distribution of reading achievement highly stratified (slope of -4.58). At UPS level it is the opposite, with the highest representation of students in the top quintile for reading achievement; nevertheless, the variations between the three highest quintiles are not of great magnitude. This is the reason why the gradient line in the distribution of scores, although positive, is less steep (a slope of 1.86).

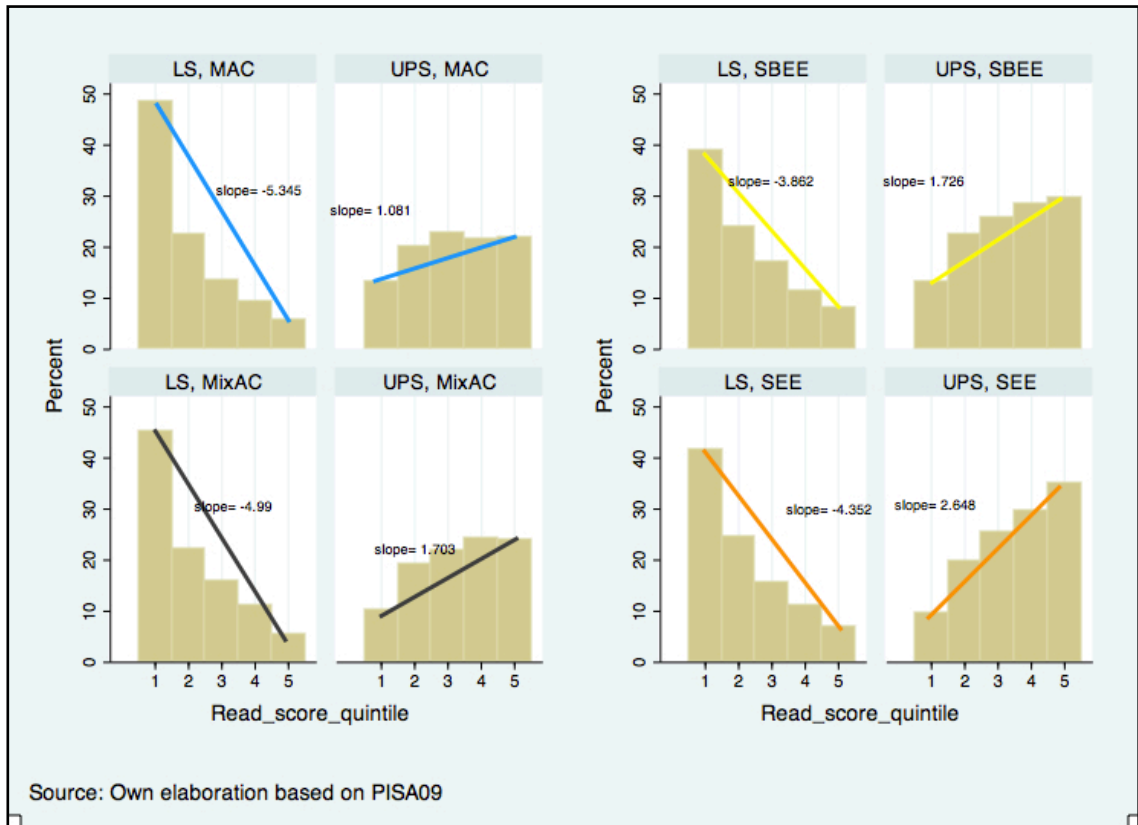
The key of this analysis is to show how this picture varies by transition process. Hence, Graph 6.9 presents the quintile distributions of scores by type of transition process and education level. It can be observed that LS students' quintile distributions of reading achievement are very stratified, having larger concentrations of students with abilities in the worst quintiles at all transition processes. Nevertheless, MAC and MixAC appear to have greater stratification of abilities with slopes of -5.3 and -4.99, respectively.⁷⁶ SEE processes at LS have the

⁷⁶ At MAC and MixAC almost 50 percent of LS students are located in the 1st quintile of ability while the representation of students reduces up to 20 percent at the second quintile.

third position with a slope of -4.35. The least stratified distribution of reading achievement at LS level is found at SBEE, where the difference in the representation of students between the 1st and 2nd quintile is less than 20 percent (slope of -3.8).

The distribution of reading abilities at UPS shows the opposite picture. The distribution of reading achievement by quintile appears more even at MAC and MixAC, with slopes of 1.08 and 1.07 respectively, while at SBEE and SEE the greatest representation of students are found at the higher quintiles with slopes of 1.7 and 2.6 respectively.

Graph 6.9 Quintile distribution of reading scores by education level and type of transition process



When comparing the LS and UPS distributions of Graph 6.9 by transition process we observe the following patterns. At MAC, LS students show the most stratified distribution of reading achievement which, after the process of transition, flattens the most. MixAC has the second most stratified distribution of reading achievement at LS level which after the transition also flattens up to a second smaller slope. At SBEE and SEE the distribution of reading achievement transposes, from a very

stratified distribution at LS to a stratified distribution at the higher end of the reading achievement scale at UPS. The result suggests that at processes where examinations are not used (MAC) or are not used widely (MixAC) the transition may promote an even distribution of achievement. Conversely when examinations are used more extensively, the distribution of scores starts showing a higher representation of students with higher achievement.

Results so far suggest that the distribution of reading scores presents larger shifts in transition processes where examinations are used more extensively than in processes where there is no additional admission criterion or where the amount of schools that make use of entry examinations is small. These results suggest that the use of examinations could contribute to having a more efficient selection. To further investigate this, I perform a distributional analysis of the reading test scores where I focus on investigating changes at the top and bottom tails of the distribution

6.3.2 Distributional analysis of reading scores under different transition processes

In this subsection I further study whether there are changes in the proportions of the best and worst UPS students' reading scores when compared to their LS peers at each transition process. The analysis is divided into three. First, I analyse the distributional changes of top performers under the different transition processes. Second, I study the changes in the representation of the worst performers by transition process. Finally, I use QR to observe if there are differences in the combined parameter transition processes and education level (interaction between LS/UPS and the transition process) at the higher and bottom ends of the distribution.

6.3.2.1 Changes in the representation of top performers

I investigate whether there are differences in the representation of the students with the highest reading achievement at each transition process. I select the 20 percent highest reading scores of LS and UPS students separately as the top performers. Following previous analyses, I focus on changes in the representation of top scorers between LS and UPS by transition processes. An increase in the

representation of top performers from LS to UPS may indicate an efficient selection (the larger the increase, the more efficient the selection).

Table 6.7 presents the distribution of top reading scores for students at different transition processes. Column A shows the total number students (LS and UPS) by transition process. Column B shows the number of students that have the top 20 percent of scores by transition process. Column C calculates the proportion of top students in LS and UPS in each transition process. Column D contains a weighted estimation of the total population of either LS or UPS' top performers in Mexico at each transition process.

Table 6.7 Distribution of high scoring students by transition process and education levels

Transition process	Education level	Total Students (A)	Total number of students with the highest scores (B)	Percentage of top performers (C)	Total Population based on weighted estimation (D)
MAC	LS	2,631	463	17.60	11,808
	UPS	5,259	885	16.83	11,961
	Total	7,890	1,348	17.08	23,769
MixAC	LS	1,347	265	19.67	16,041
	UPS	3,751	700	18.66	15,628
	Total	5,098	965	18.93	31,669
SBEE	LS	2,450	538	21.96	30,875
	UPS	7,996	1,578	19.73	43,212
	Total	10,446	2,116	20.26	74,086
SEE	LS	3,444	709	20.59	44,608
	UPS	7,324	1,703	23.25	85,334
	Total	10,768	2,412	22.40	129,942

Source: Own elaboration based on PISA 09.

The 20 percent of LS students in the sample that have the highest scores (Column C) represent 18 percent of the LS population at MAC, 20 percent at MixAC, 22

percent at SBEE and 21 percent at SEE. The results show that at LS level the representation of top performers is proportionally the smallest at MAC, followed by MixAC, and SEE. It also highlights that the proportional representation of top performers is the highest at SBEE transition process; which is aligned with previous results that showed that the mean scores were the highest at SBEE among LS students.

For students at UPS level, results show that SEE has 23 percent of top performers at UPS level; SBEE contains 20 percent; MixAC 19 percent and MAC 17 percent. When observing the change in LS and UPS students' top performers' representation by transition process in Table 6.7 we observe that: (i) There is no proportional change in the representation of top performers at MAC. (ii) In MixAC the representation of UPS top performers is slightly reduced when compared to their representation at LS level. (iii) In SBEE, where at LS level the highest representation of top performers could be found, at UPS level the representation of top performers is smaller (iv) At SEE the representation of top performers is greater at UPS level when compared to their LS level counterparts in the same process. (v) Overall, some inferences can be made in relation to how entry examination extensiveness and heterogeneity may relate to the efficiency of the selection. The results suggest the heterogeneity of the procedures could have a negative effect on efficiency, as proportionally the representation of top performers is reduced at the two processes that have heterogeneous procedures. Conversely, in homogeneous processes, the effect of the use of entry examinations behaves as expected: the more extensive use of examination may promote more efficient selection as proportionally higher amounts of top performers are found.⁷⁷

In addition, it is relevant to also estimate if, at population level, these differences are relevant. Hence, I analyse how the representation of top performers varies in population numbers. For this I use the sample weights of students to estimate numbers of top performers at each transition process. The estimation of top performers based on the sample weights show that at MAC we can expect to find 11,961 top performers; 15,628 top performers at MixAC, 43,212 top performers at SBEE and 85,334 top performers at SEE. It is worth nothing that the estimated

⁷⁷ The differences in the percentage of top 20 percent scoring students show to be significant when tested using ANOVA weighted sample test

total number of top performers relates to the populations of the States that use each type of transition process. However in absolute numbers, SEE transition processes seems to select double the amount of top performers at UPS level compared to LS. MAC appears to have selected a very similar amount of top performers at UPS compared to the LS reference group. Contrary to what the previous findings suggested, in actual numbers the representation of top performers seem to have reduced only at MixAC, while in SBEE the numbers of top performers selected at UPS is higher at UPS level than at LS.

The results presented so far suggest that it is only in the contexts with the most extensive use of examinations, SEE and SBEE, that the number of top performing students seemed to have improved at UPS with respect to the reference group. However, only SEE showed a higher representation of top performers proportionally and as a whole. Therefore, the extensive use of examinations could promote efficient selection when supported by homogeneous procedures. Conversely, MixAC and SBEE do not show proportionally an improvement in the representation of top performers. On the contrary, it appears that the presence of high scoring students is slightly reduced when compared to the reference group, which could be attributed to the heterogeneity of procedures. Lastly in MAC processes based on no additional admission criteria, the achievement of UPS students appears to be almost a direct reflection of the achievement representation of the reference group.

6.3.2.2 Changes in the representation of worst performers

In this subsection I observe whether there are differences in the representation of the students with the lowest reading achievement at each transition process. Similar to the analysis for top performers, Table 6.8 present results for the worst performers. The results show that at LS the worst performers represent 24 percent at MAC, 21 percent at MixAC, 17 percent at SBEE and 18 percent at SEE. The percentages of the worst UPS performers by transition process are as follows 23 percent at MAC, 20 percent at MixAC, 20 percent at SBEE and 17 percent at SEE. Hence at MAC, MixAC and SEE the representation of worst performers seems to decrease by 1 percent when UPS students are compared with their reference group; while in SBEE it seems to have increased by 3 percent.

Table 6.8 Distribution of the worst scoring students by transition process and education level

Transition process	Education level	Total Students (A)	Total number of students with the lowest scores (B)	Percentage of worst performers (C)	Total Population based on weighted estimation (D)
MAC	LS	2,631	642	24.40	26,312
	UPS	5,259	1,228	23.35	22,643
	Total	7,890	1,870	23.70	48,955
MixAC	LS	1,347	288	21.38	15,316
	UPS	3,751	766	20.42	16,060
	Total	5,098	1,054	20.67	31,375
SBEE	LS	2,450	429	17.51	30,445
	UPS	7,996	1,634	20.44	36,820
	Total	10,446	2,063	19.75	67,264
SEE	LS	3,444	614	17.83	37,389
	UPS	7,324	1,238	16.90	35,396
	Total	10,768	1,852	17.20	72,785

Source: Own elaboration based on PISA 09.

The results suggest that regardless of the type of selection used in the transition to UPS, the trend is that the representation of the worst performers is slightly improved. Nevertheless, the fact that the representation of the worst performers remains very similar may be related, not to the process of selection used during the transition, but to the social selection that occurs when students finish LS. The students that drop out before an educational transition are the ones that come from the most disadvantaged social backgrounds and/or who have poor achievement (Reimers, 2000). Therefore, it is likely that when UPS representation is compared to the LS reference group their representation is likely to be less. The only exception is a SBEE transition process that seems not to be efficient in selecting students. The results can be explained in the following way. At SBEE, LS level representation of top performers seems to be the highest. Therefore, at UPS,

students in SBEE must have a very important score improvement to be able to show an improvement in the representation of top performers, which is not the case.

The differences in the percentage of the 20 percent worst scoring students shows to be significant when tested using the ANOVA weighted sample test. I also investigated whether these differences are relevant in the population, as previously analysed for the top performers. The results presented in Column D show that at UPS level MAC has 3,669 worst scoring students less than the LS reference group; while SEE has 1,993 students less. Conversely, MixAC has 748 worst scorers more than the LS group, while SBEE has 6,375 worst scoring students more at UPS than at LS level. As, MAC and SEE are the processes that seem to reduce the numbers of students with low levels of achievement; processes with homogeneous procedures appear to promote more efficiency than heterogeneous procedures. Conversely, among the heterogeneous procedures processes of MixAC and SBEE, it appears that the more extensive the use of entry examinations, the less the amount of worst performers.

Finally, it is relevant to highlight the importance of a negative or positive result in the analysis of the selection of the top and worst performers. If there are smaller numbers of top performers after a transition that may suggest that students with high levels of achievement may not have been able to complete a successful transition, which is not only inefficient but not desirable. Moreover, if the numbers of worst performers appear to increase after the transition, the process may have allowed greater numbers of low achievement students to make it to UPS level, which is inefficient. The results of the analysis of top and worst performers presented so far point out that the heterogeneity of the procedures may promote inefficient selection, while homogeneous procedure process seem more efficient.

Within the heterogeneous processes of MixAC and SBEE, many top performers appear to have dropped out before completing the transition, while higher numbers of low achievement level students may have made it to UPS. Conversely homogeneous processes appear to work in the following way. Processes with the most extensive use of examinations such as SEE, are most likely to improve the representation of top performers, while at the same time slightly reduce the

representation of students with the lowest levels of achievement. The processes that have no additional admission criteria on the other hand may allow a similar representation of top performers to get to UPS compared to their reference group as there is no mechanism of selection, while the representation of worst performers seems to reduce. To further investigate if the results and inferences made so far can be sustained, I perform QR in the following subsection.

6.3.2.3 The effect of the transition process on the distribution of reading scores

I further study the efficiency of the selection by analysing the differences in the distribution of top and worst scorers among LS and UPS students under different transition processes. I use QR as it allows me to measure the association between transition process and students' scores at any desired percentile. Moreover, QR analysis allows an observation of the associated effect between the type of transition process used and the level of education, on the differences at different cut off points along the distribution of reading scores. As was already mentioned, I assume that the most important differences in efficiency due to different selection processes would be observed at the top and bottom ends of the score distribution. Nevertheless, to have a point of reference I will still look at the middle of the distribution scores. Therefore I perform QR analysis at the 20th, 60th and 80th quantiles.

Using the cut off points in the regression analysis I expect to observe whether there are differences in the interacted effect of LS/UPS level and transition process at the top and bottom ends of the score distribution. The analysis is performed as follows. I compare LS and UPS coefficients under each transition process. In such a comparison LS effects are seen as the status quo of the process among 15-year-olds, therefore the comparison of the interaction effect of transition process and UPS level may suggest something about the process of transition when compared to the effects of the reference group. If a stronger effect is found at the 80th percentile than at the 20th among UPS when compared to LS level, the transition process may produce an efficient selection, because the stronger effect is found in the representation of students with the highest scores. On the contrary, if in the comparison between LS and UPS interaction by transition process, the stronger

effect is found at the bottom end of the scores rather than at the 80th quantile, it could be inferred that the transition process is not efficient because the major effect would be found for the lowest scores.

The results of the QR at the 20th, 60th and 80th cut off points are presented in Table 6.6. If we compare the QR results of the 20th, 60th and 80th cut off points, there are a couple of patterns worth highlighting. First, we can observe that the interaction coefficients of the transition processes at either LS or UPS levels show little variation at the 60th percentile and wider variations at the 20th and 80th percentiles, suggesting that indeed the most important effects would be observed in the bottom and highest ends of the score distributions.

Table 6.9 Quantile regression coefficients based on the interaction between type of transition process and education level at the 20th, 60th and 80th percentile

Interacted variable Transition process and Education Level	Percentile 20th (0.20)	Percentile 60th (0.60)	Percentile 80th (0.80)
MAC_LS	-45.958* (2.932)	-7.304** (3.635)	-45.584 (3.986)
MAC_UPS	12* (3.341)	60.842 *** (4.183)	8.37*** (3.418)
MixAC_LS	-53.78*** (2.552)	-9.532 *** (2.892)	-27.89*** (3.915)
MixAC_UPS	26.496 ** (2.168)	68.056 *** (1.365)	18.179*** (3.915)
SBEE_LS	-6.794*** (1.395)	10.01 ** (2.388)	-6.553 *** (2.591)
SBEE_UPS	33.962 *** (1.734)	68.0 *** (1.332)	17.622 ** (1.752)
SEE_LS	-25.863 *** (2.043)	4.21 ** (1.904)	-30.36** (1.855)
SEE_UPS	12.186 *** (1.353)	77.214 *** (1.210)	50.579*** (1.085)
Constant	310.91	394.87	441.05

Source: Own elaboration based on quantile regression analysis including sample weights. Asterisks
*, **, ***, represents statistical significance at 10, 5 and 1% respectively.

Secondly, for the reference group the combined effects with the transition process are smallest at the middle (60th percentile) and larger and very similar amongst the 20th and 80th percentiles. On the contrary, for UPS level the combined effects of the transition process at the 20th and 80th percentiles vary in magnitude, while remaining fairly stable at the 60th percentile. Therefore the results suggest that the transition to UPS could make a difference in the selection of worst and top performers.

Additionally it can be observed in Table 6.9 that the combined effects of MAC and LS level on the reading scores at the 20th and 80th quantiles are very similar. The coefficients suggest that the effect of MAC among LS students is associated with a decrease in 46 points in the reading scores when compared to the rest of the students (both at LS and UPS). It can be assumed that in this process LS students are likely to score 46 points less than the rest, notwithstanding their scores being at the bottom or top end. Conversely, the interaction coefficient of UPS level and MAC appears to improve the reading scores at both ends of the score distribution; nevertheless the interaction shows a greater effect at quantile 20th (12 points) than at the 80th (8 points). This is the process where the smallest difference in the UPS effect is found at the 20th and the 80th quantile. Therefore, it can be inferred that the combination between MAC and UPS level is associated not only with a stronger effect on the 20th quantile compared to the 80th quantile, but also with the smallest effect difference between them. The findings suggest that in a process with homogeneous procedures and no entry examinations, the transition would not have a strong effect on the representation of high scoring students.

The combined effect of MixAC and LS level shows that LS in that process is associated with a reduction of 53 points in the reading scores at the 20th quantile and 28 points at the 80th quartile. Conversely, the combined effect of MixAC and UPS level is associated with an increase of 26 points in the reading scores at the 20th quantile and 18 points at the 80th cut off point. These results can be interpreted in the following way: MixAC is the process where the strongest negative effect is found at the bottom end of scores in LS among all transition processes. It is inferred that the representation of students with the worst scores is the highest when compared to the rest. When observing UPS and its interactive

effect we observe that the stronger effect is found at the scores at the bottom end. Therefore, the transition using MixAC processes does not seem to be associated with a more efficient selection.

With respect to SBEE we observe that the interaction effect with LS is very similar at the top and bottom ends of the reading scores. The findings suggest that the combination of SBEE process and the reference group is associated with a decrease of 6 points in both the 20th and 80th quantiles of the reading scores. This result is aligned to the fact that the scores of the reference group in SBEE are shown to be the highest. On the contrary, the interaction effect of SBEE and UPS level is associated with a positive effect of 33 points at the 20th quantile and 17 points at the 80th quantile. Nevertheless, the effect continues to be smallest at the bottom end of the distribution which suggests that the process may not be selecting students more efficiently.

Finally, the interaction effect of SEE with the LS level reference group shows a reduction of 25 points in the reading scores at the lowest end and 30 points at the top end of the distribution. Conversely, the interaction effect with UPS shows a 12 point increase in the scores at the bottom end and 50 points at the higher end of the distribution. Therefore it is inferred that as the stronger coefficient for the 80th percentile the characteristics of this process could have a positive effect on the selection of the most able.

Overall, the results from QR suggest that: (i) It is only at SEE where the representation of top performing students appears to have improved at UPS, while the representation of worst performers has reduced compared to the reference group. (ii) MixAC and SBEE do not seem to improve the representation of top performers; while the representation of the worst performers appears to remain very similar to the reference group. (iii) In MAC the representation of UPS top performers appears to be a reflection of the reference group. That suggests that the processes without entry examinations may not affect the representation of high scoring students.

To be able to make a more in depth analysis on the efficiency differences of the transition processes, I further explore the relationship that the particularities of the States that use each transition process have on the UPS students' achievement.

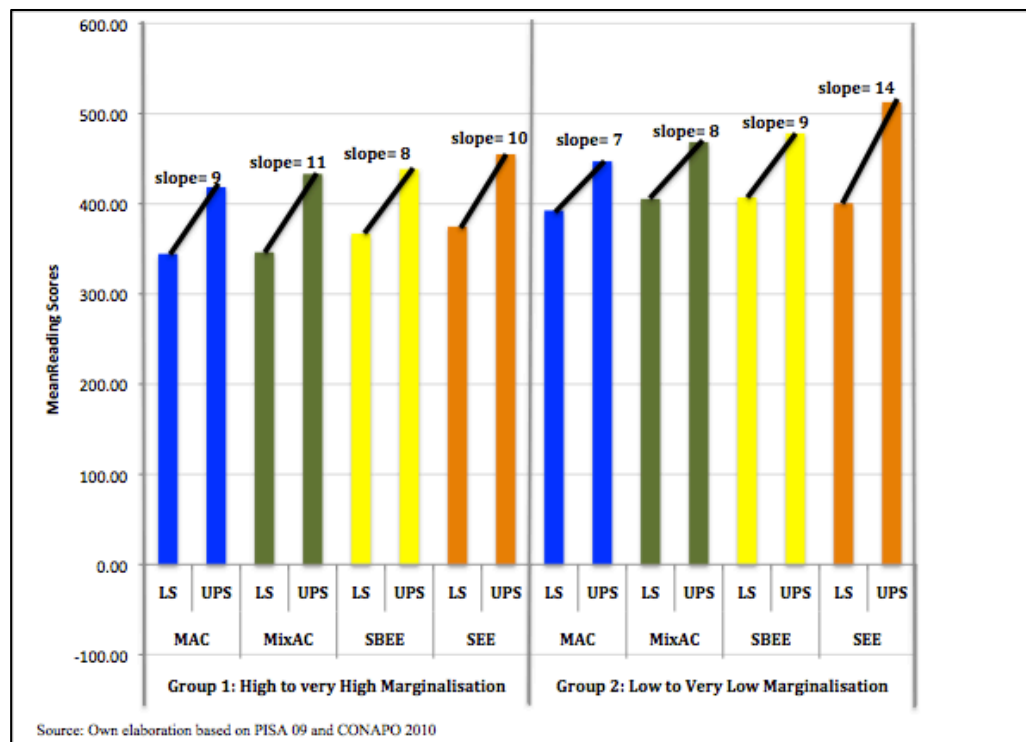
6.3.3 The State effect on the efficiency of the UPS selection under different transition processes.

This subsection investigates how States under different transition processes and degrees of marginalisation may select students at UPS based on their achievement. Similar to the analysis performed in Section 6.2.2 for effectiveness I present the results of two groups of States according their marginalisation. Group 1 are States with high to very high levels of marginalisation and Group 2 are those with low to very low levels of marginalisation. I present the results of these two groups only because middle level of marginalisation States do not show relevant achievement gap variations between UPS students and the reference group. Hence it appears that the most radical differences in the efficiency could appear amongst the poorest and richest States.

Graph 6.10 presents the mean scores of UPS students and reference groups in LS by transition process for Groups 1 and 2. LS students' mean scores are considered to be a reference of 15-years-old's achievement at States with contrasting levels of marginalisation. It is believed that when comparing the scores of LS and UPS students, the slope differences observed may suggest something regarding the efficiency of the selection.

In Graph 6.10 it can be observed that, as expected, the mean scores of both LS and UPS students are higher at Group 2 than at Group 1. To start the analysis it is worth noting a few differences in the achievement of LS and UPS by States' levels of marginalisation. LS students' achievement shows more variation at Group 1 than at Group 2. LS students at Group 1 score on average 358 points while showing a SD of 15.07. Conversely, LS students at Group 2 score on average 401 points while they show very small variation under the different transition processes observed ($SD=6.52$). As LS students' achievement is more evenly distributed at rich States it is believed that poorer States may allow for more variations by students own background characteristics (Davies et al. 2008).

Graph 6.10 Mean Reading Scores at States with very high and high versus low very and low level of marginalisation by transition Process



On the contrary, at UPS level the achievement of students varies more in Group 2 than in Group 1. UPS students in Group 1 score on average 436.3 points with a SD of 16.04; while UPS students in Group 2 score on average 476.67 with a SD of 27.37. As UPS students' achievement at rich States varies more than at poor States it can be inferred that poor States where the achievement level is generally lower, the use of entry examinations would not make much difference in the selection (Broadfoot 1996).

As the scores show greater variations at UPS than at LS level, the different mechanisms of selection experienced by UPS students are believed to explain UPS students' differential level of achievement. When observing the slope's differences between reference groups and UPS students, certain inferences can be made. First, there is more variation in the magnitude of the slopes at Group 2 than at Group 1. It is believed that the variation in the slopes is higher in Group 2 because the abilities of students are generally better and as a result the transition processes could make more difference in the selection. Second, in poor States the greater slope is found at MixAC (11) followed by SEE (10) MAC (9) and SBEE (8). Hence at poor States the

slope differences do not show a particular trend or pattern that could be attributed to the processes' of transition (nor to the extensiveness in their use of examinations or their heterogeneity). It is believed that in poor States the selection mechanisms could make a difference in the selection because these States already have the worst educational outcomes and conditions (Instituto Nacional para la Evaluación de la Educación 2011). Third, at rich States the more extensive the use of examinations the wider the achievement difference between UPS and the reference group. MAC and SEE in rich States show the smallest and greatest gap between LS and UPS students, with slopes of 7 and 14 respectively. Therefore the lack of examination process appears to be the least efficient in selecting students at UPS level, as the difference in LS and UPS students' achievement are the smallest. Conversely, the most extensive examination processes seems to promote the most effective selection, as the differences between LS and UPS students achievement are the greatest.

What is interesting is the lack of score variations to be found at the middle level of marginalisation States. It is believed that the results correspond to the particularities of the States categorised in the marginalisation level. The middle level of marginalisation States are: Sinaloa that uses MAC; Durango and Guanajuato that use MixAC; Nayarit, Querétaro and Zacatecas that use SBEE and Tlaxcala⁷⁸ that uses SEE. I looked for similarities in the characteristics of these States that may explain why the average scores of UPS are relatively the same at all transition processes. The States have very similar education outcomes. They have similar enrolment, completion, and graduation rates at LS; at UPS secondary they enrol on average 62 percent of the relevant population which, as presented in Chapter 4, is a relatively good accomplishment in the Mexican context. Additionally, these States do not tend to have education conflict with teacher unions. Their generally good education characteristics in conjunction with a lack of education conflict and medium levels of marginalisation seem to have a positive relationship with students' attainment.

⁷⁸ Tlaxcala is the only SEE State just started using unified entry examinations in 2008. Therefore, the UPS students in the State would have been selected for the first time with this kind of selection in 2009. With this regard, theory has suggested that new processes and policies take a while to operate in the expected way (Bardach, 2012). Consequently, it can be presumed that in Tlaxcala more efficient selection would only be evident after few years of selection. Finally, if the only State that uses SEE cannot be considered to be operating appropriately yet, the selection at these processes may still be performed in a very similar way which explains the lack of variability.

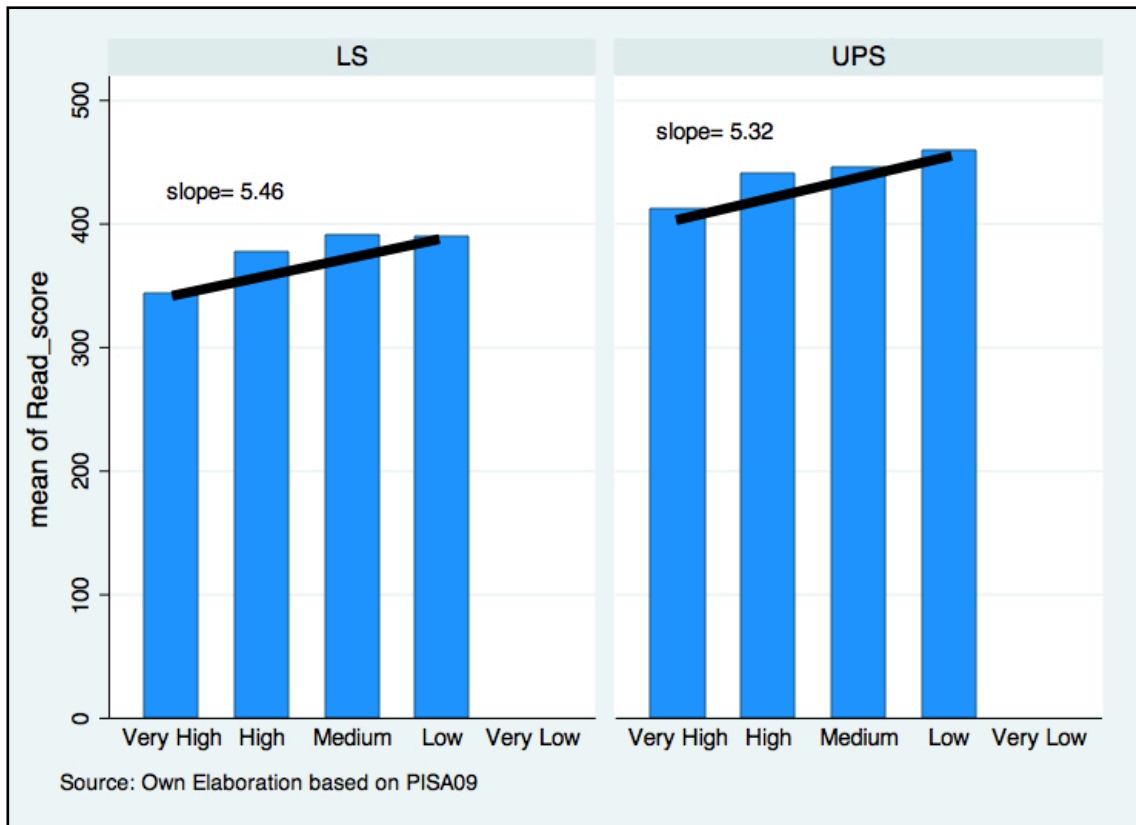
To strengthen the analyses I further explore each category of transition process by the level of marginalisation of the States. As mentioned before it is expected that UPS students score better because the transition serves as a filter which the more able students successfully go through. Nevertheless, if the transition process could make a difference, variations in the distribution of scores would be found when comparing UPS with their reference group of LS students in the same transition process. The assumption is the following: LS students at each transition process have certain score trends that may vary by the level of marginalisation of the State where they live. If the selection performed during transition makes no difference, the trend of UPS students' achievement would be similar, although with higher scores. Therefore, only when the score distributions of LS and UPS students' shift it could be argued that the type of selection is affecting such variation. Furthermore, I will choose contrasting cases using level of marginalisation as criteria of each transition process to make comparisons.

Eight States use MAC for the transition to UPS (Aguascalientes, Baja California Sur, Campeche, Colima, Chiapas, Guerrero, and Sinaloa). As is described in Chapter 5, the levels of marginalisation of the States that use MAC vary as well as their educational characteristics. Graph 6.11 shows that in States with low levels of marginalisation the scores are consistently higher for both LS and UPS students. This is represented by the gradient line in black. It is worth noting that the gradient line among LS and UPS students is very similar, with 5.46 and 5.32 respectively. The slope difference suggests that the selection of UPS students may sustain the differences in education attainment observed at LS level. It is believed therefore that MAC may be making little difference in the selection of UPS students.

Additionally, I use Aguascalientes with low marginalisation levels and Guerrero with very high marginalisation levels as contrasting examples to investigate the differences that may relate to the use of minimum admission criteria and homogeneous procedures. Aguascalientes UPS students score on average 465.12 while in Guerrero 419.48 points; the differences in the scores when compared to their reference groups are 5.2 and 5.4 points respectively. This suggest that regardless of the levels of marginalisation in the State, at MAC there is a stable

score difference between LS and UPS students which implies that the minimum admission criteria could make little difference in the selection.

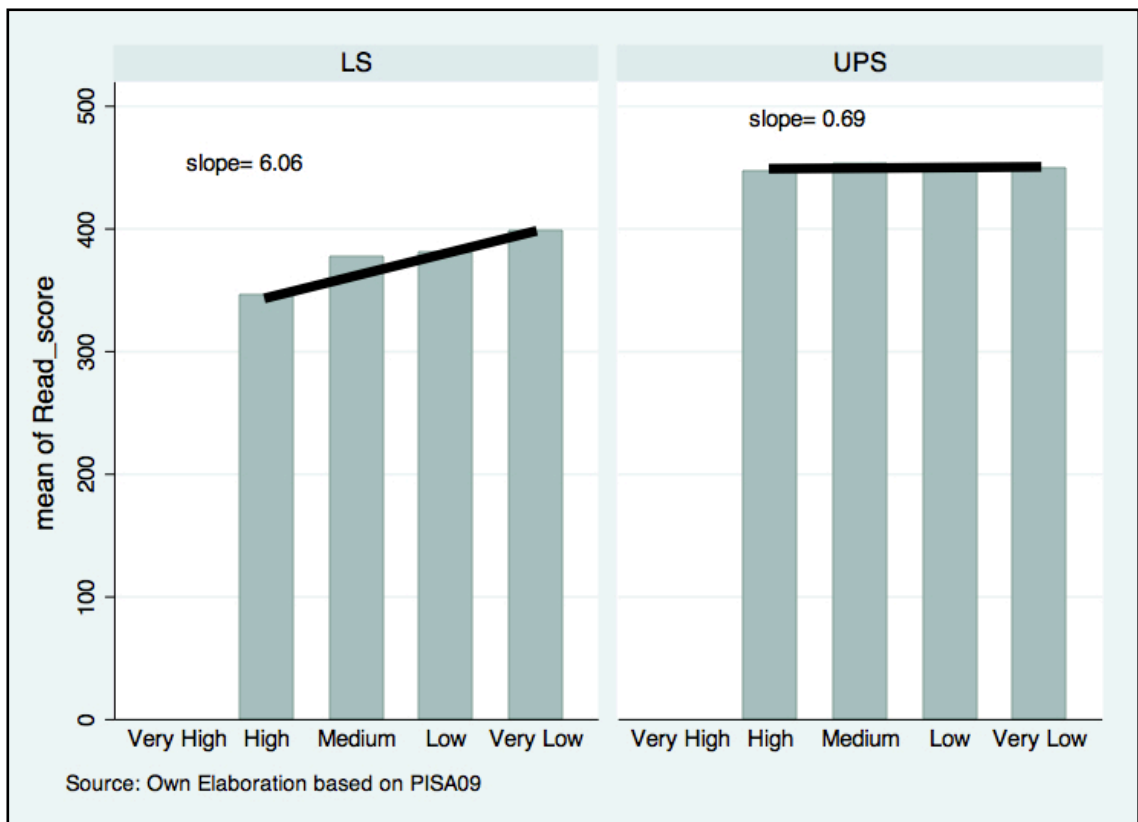
Graph 6.11 Mean reading scores at MAC by education level and States' marginalisation



The States that use MixAC are Coahuila, Durango, Guanajuato, Hidalgo, and Tamaulipas. Graph 6.12 shows that there are important differences in the mean scores of LS students that live in States that use MixAC. LS students that live in States with very low level of marginalisation score on average 60 points higher than LS students in high marginalisation States (slope 6.06). On the contrary UPS students score on average the same (slope 0.69). This suggests that the selection at MixAC could be making a difference in the expected trend of the scores for UPS students. It is possible to infer that the use of entry examinations at some schools is making a difference for States with less favourable conditions, which makes UPS scores the same regardless of the level of marginalisation in the State where students live. To explore the case in more in depth I use Coahuila and Hidalgo as contrasting cases. Coahuila and Hidalgo's LS students score on average 398.78 and 346.21 points respectively, while UPS students in Coahuila score on average 449.69

and in Hidalgo, 447.18 points. That translates into a difference between LS and UPS students of 51 points at Coahuila and 101 points at Hidalgo. The result confirms that although UPS students' scores improved in both States, the difference in Hidalgo was double that of Coahuila's. Therefore the use in some extent of examinations and heterogeneous procedures appears to be associated with an efficient selection of UPS students, especially in the most disadvantaged States.

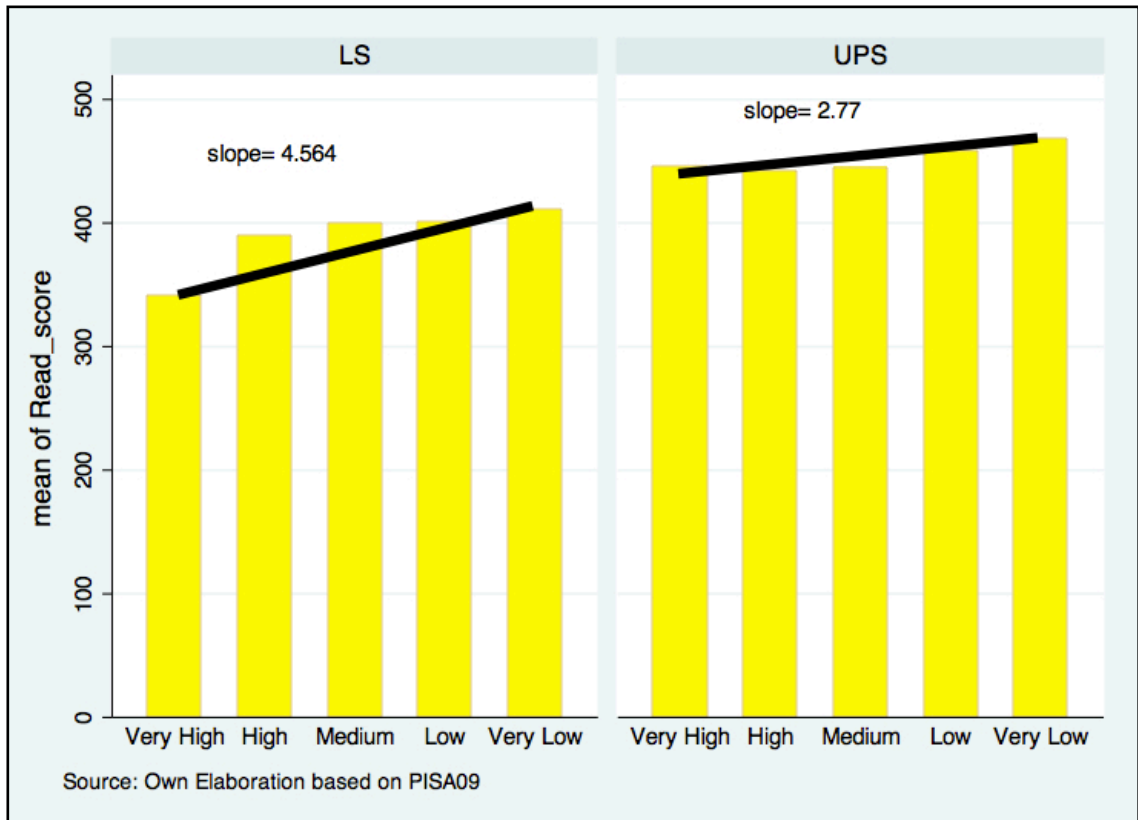
Graph 6.12 Mean reading scores at MixAC by education level and States' marginalisation



SBEE transition processes are used by Jalisco, Michoacán, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Querétaro, San Luis Potosí, and Zacatecas. It can be observed in Graph 6.13 that the mean scores of LS students that live in States that use SBEE are relatively the same with the only exception of very high marginalisation States. Despite that, as the mean score difference between high to very high levels of marginalisation is important, the slope in the mean scores at LS level is 4.5. The only very high marginalisation State that uses SBEE is Oaxaca; ergo the particular characteristics of Oaxaca explain why the mean scores of LS students in the poorest State category are considerably lower. At UPS level on the other hand, the scores

are more aligned, and the gradient line turns flatter (slope = 2.77) suggesting that the use of SBEE shifts the distribution of scores at UPS level. To further analyse the case I use Nuevo León and Oaxaca as contrasting cases. In Nuevo León, UPS students score 468.28 points on average which is 58 points more than LS students. Yet in Oaxaca students score 444.93, which is 104 points more than LS students. The use of entry examinations in some school's modalities and heterogeneous procedures appears to make a more efficient selection of UPS students at the most marginalised States.

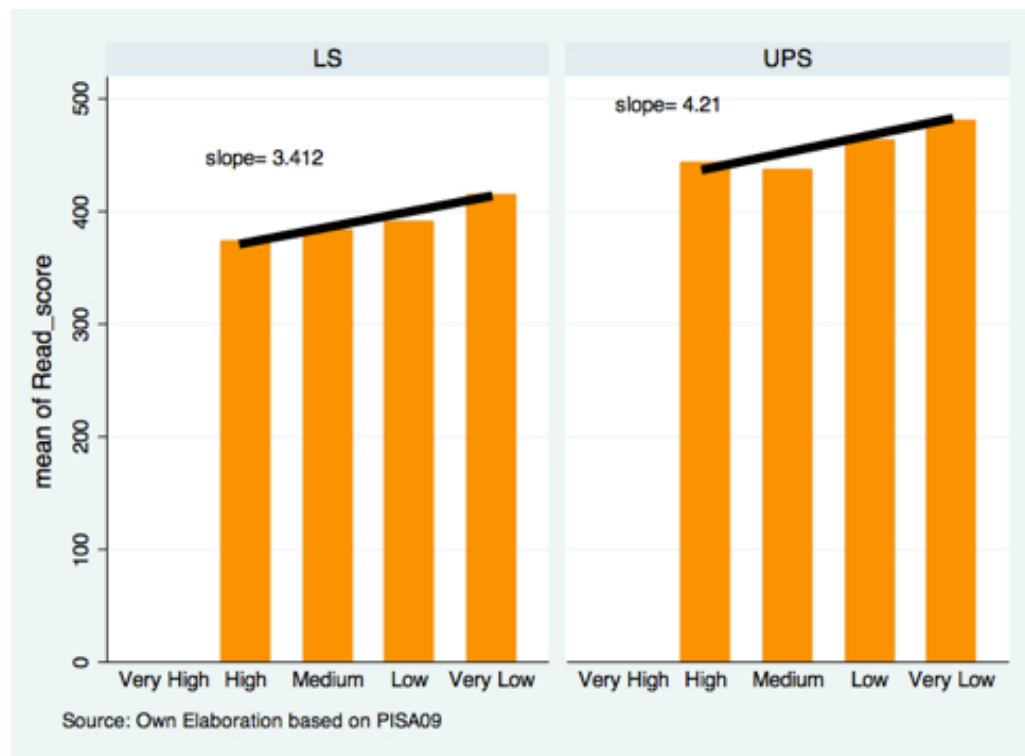
Graph 6.13 Mean reading scores at SBEE by education level and States' marginalisation



Finally, SEE transition processes are used by Baja California, Chihuahua, Federal District, México, Quintana Roo, Sonora, Tabasco, Tlaxcala, Veracruz, and Yucatán. In Graph 6.14 we can observe that the trend where UPS students score higher than LS prevails; as well as the trend where students from rich States score higher than their peers that live in poorer States. The gradient lines that mark the difference in the mean scores amongst LS and UPS students show a slightly steeper slope at UPS level (4.21) than at LS level (3.41). The results suggest that by having extensive use

of examinations and homogeneous procedures, students with higher achievement could be selected at UPS level; while the selection appears to be more efficient at rich States than in poor States. The two contrasting cases to observe are the Federal District (very low level of marginalisation) and Veracruz (very high level of marginalisation). UPS students in the Federal District score on average 490.79 which is 55 points higher than the mean scores of the reference group in the State. On the contrary in Veracruz UPS students score on average 456.92 points which is 64 points higher than the reference group's mean scores. The results suggest that the extensive use of examinations and homogeneous procedures may promote a more efficient selection in poor States than in rich States.

Graph 6.14 Mean reading scores at SEE by education level and States' marginalisation



The results suggest that level of marginalisation of the States where students live may affect the efficiency of the selection performed by the transition processes studied: (i) The slope differences between LS and UPS students by level of marginalisation of the State are strongest at SBEE and MixAC; while at SEE and MAC small slope differences are observed. (ii) In MixAC and SBEE LS students' very stratified achievement difference according to the level of marginalisation of the States appears to shift into a steeper slope at UPS level. These results suggest that

the differences between UPS students and reference group could be more important at States with higher level of marginalisation. (iii) On the contrary, at SEE and MAC the slopes by States' level of marginalisation sustain at UPS level. Nevertheless, where no additional admission criteria is used the achievement differences appear to be the same at poor and rich States; whilst where examinations are used extensively, the achievement differences between students living in poor States are higher than for those living in poor States. (iv) Overall it appears that in processes where entry examinations are used, the richer the State the more efficient the selection, while in processes where no additional admission criteria are used, the selection does not appear to vary much according to the characteristics of the States where students live.

6.3.4 Final remarks on the efficiency of the different transition processes

I have analysed the efficiency of the UPS selection under different transition processes. Five main findings can be highlighted. First, the overall results suggest that the extensiveness in the use of entry examinations, as well as the heterogeneity/homogeneity of the procedures, may affect the efficiency of the selection at UPS level. Nevertheless, the results contradict some of the assumptions that guided the analysis. Despite the processes with the most extensive use examinations appearing to support the most efficient selection; the use of examinations in other processes does seem to promote the selection of more students with higher levels of achievement. Additionally, contrary to what was expected, at heterogeneous processes, the representation of students with the highest level of achievement does not appear to improve. On the contrary at MixAC and SBEE, despite their use of entry examinations, the representation of students with the highest level of achievement appears to reduce when compared to their reference group. Consequently, the results point to suggest that the efficiency of the selection is mediated by the heterogeneity of procedures.

Second, the level of marginalisation of the State where students live may affect the efficiency of the selection. In particular, it appears that in processes where entry examinations are used, the richer the State the more efficient the selection. Conversely, in the processes where no additional admission criteria are used the selection does not appear vary much according to the characteristics of the State

where students live. The results suggest that the efficiency of the selection at UPS level may be mediated by the characteristics of the State in which the transition takes place. At richer States the selection may be more efficient because students' achievement is generally higher and because their means are better. Additionally, at rich States proportionally greater numbers of students are willing to complete the transition into UPS level than at poorer States; therefore the transitions could tend to be more competitive, selective and ergo efficient.

Third SEE, the transition process where examinations are used in the most extensive appears to be the most efficient. This is because SEE seems to select more able students than any other process compared to the reference group. Moreover, proportionally this process appears to increase the representation of top performers and reduces slightly the representation of students with the lowest level of achievement at UPS when compared to LS level. This is aligned with what the economic theory suggests as by improving the representation of more able students the cohort selected is more likely to have a successful progression through to UPS level, is more likely to graduate and is more likely to benefit and make more use of their learning (Laursen, 1993).

Fourth MAC, the process that has no additional admission criteria, may allow the representation of top performers to be almost a reflection of the reference group. What is interesting is that the representation of the worst performers in this process appears to be slightly reduced. The result suggests that as this process does not seem to affect the selection of the most able but neither increases the representation of worst performers, it can be considered to provide a "filterless" transition. This is supported by the fact that in this process the achievement differences between UPS students and the reference group appears to be the same at poor and rich States.

Finally, the processes that have heterogeneous procedures appear to be the least efficient. This is because the representation of students with the highest achievement levels seems to be reduced when compared to their reference group. It is also because in these processes the representation of students with the lowest levels of achievement seems to be greater at UPS than in LS. In addition at MixAC and SBEE the level of marginalisation of the State where students live seems to

have the strongest effect on the selection at UPS level. The result suggests that in these two processes, the poorer the State the strongest the difference in the achievement of the students selected when compared to their LS reference group. Nevertheless, poor States seem to be more efficient because heterogeneous procedures serve as a double filter for selection.

It is a matter of great importance to observe whether the different transition process have a differential effect in the perspectives that students construct about their future. In the following chapter I focus on the third theoretical approach for the study of educational transitions.

Chapter 7: Students' educational expectations under different transition contexts

This chapter studies the education expectations of public school pupils in Mexico under the different transition processes and enquires how 15 year-old students' educational expectations differ by transition process used where they live. This chapter focuses on 2 sub-questions: 1) Are there differences in 15 year-old students' expectations by education level attended and transition process used where they live? and 2) Do the particularities of the State where students live differently affect the education expectations of students that experience the same process of transition?

In this chapter I argue that there is a relationship between the different transition processes and the education expectations of students. I believe that the heterogeneity of procedures, as well as, the extensiveness of the use of entry examinations may influence on the kind of educational expectations students can construct. In particular, this chapter is built on the notion that the relationship between the different transition processes and students' expectations would vary according to whether students have completed the transition to UPS. This is because LS students (grade 9) are facing the transition process in the present, while UPS students (grade 10) have completed the process successfully. Taken together the analysis has two main assumptions:

- Regarding the procedures I believe that UPS students could show higher expectations in transition processes that have heterogeneous procedures than in homogeneous. This is because UPS students that have completed a transition process with heterogeneous procedures may benefit from a reinforced confidence in their capability to complete future education transitions as they have already succeeded in a demanding educational context. Conversely, I believe LS students that are facing the difficulties of heterogeneous transition processes may be unsure of their chances to succeed and show lower education expectations than students that face homogeneous procedures. Therefore, when comparing LS and UPS

students' expectations the gap is expected to be smaller at processes with homogeneous procedures.

- Regarding the extensiveness of the use of entry examinations I assume the following. UPS students that completed their transition through processes that have extensive use of entry examinations could show higher expectations than students at processes where the use of examinations is not extensive or where there are no additional admission criteria. This because UPS students' confidence may be reinforced after having completed a successful transition via a competitive selection processes. Thus, I would expect the education expectations of LS students to behave in the opposite way. I believe that LS students that experience competitive selections may be unsure about their chances of succeeding and ergo have lower education expectations than students that will experience less competitive processes. As a consequence I expect to observe greater differences in expectations between LS and UPS students at processes that make extensive use of examinations compared to the rest.

The analysis is undertaken using PISA 2009 data for public schools, which contains information about 15 year-old students who are either enrolled at LS or UPS.

Despite focusing only on the transition performed at public schools, in part of the analysis I use PISA 2009's complete sample (including private schools) because it enables me to make more robust inferences on the relationships observed. For the analysis I use quantitative methods to study whether there are changes in the distribution of education expectations between LS and UPS students under different transition processes. In particular, I use descriptive statistical analysis, regression analysis with ordered probit model and sensitivity analysis.

The chapter is structured as follows. Section 7.1 describes the methodology, methods and variables used in the analysis. Section 7.2 describes students' education expectations under different transition processes. Section 7.3 analyses the relationship between different transition processes and students' expectations using sensitivity analysis. In Section 7.4 I perform an analysis of how the marginalisation of the State where students live could mediate the effect that the

transition processes may have on students' education expectations. Finally, in Section 7.5 I provide a summary of the most important findings and draw conclusions.

7.1 Methodology and methods in the study of students' education expectations under different transition processes

This chapter studies the education expectations of 15 year-old students under different transition processes. In this section, I present the methodology and methods used in the chapter. This section is subdivided in two: In subsection, 7.1.1 I present the methodology, as well as the data used in the study. In subsection 7.1.2 I present the methods employed in the analysis. Such methods are: Chi-square tests, Chi-square goodness of fit test, ordered probit regression and sensitivity analysis.

7.1.1 The methodology in the study of students' educational expectations under different transition processes

The analysis in this chapter is based on the psychological approaches presented in Chapters 1 and 2. The psychological approaches suggest that the selection mechanisms used during education transitions affect students' self-perceptions, motivations and expectations. There is still debate about whether admission and selection mechanisms have a negative or positive effect on students' perspectives about their future. One set of literature suggests that the use of entry examinations may lower students' levels of intrinsic motivation (i.e. Gipps, 1994, Anderman and Anderman, 1999, Wigfield et al., 2008 and Putwain, 2011) or affect their beliefs about whether they can pursue high educational goals (Boxer et al., 2011). Conversely, others have suggested that students who experience entry examinations tend to engage more at school and as a consequence their expectations increase (Bandura et al., 1996, Boxer et al., 2011). It is relevant to highlight that despite such lack of consensus, the psychological literature on transition processes agree that selection mechanisms have long term effects on students, which may significantly affect their future life trajectories (Descombe, 2000). This chapter contributes to that discussion as I study whether the different

transition processes used in Mexico may affect the educational expectations of LS and UPS students.

In this analysis the main source of information is PISA 09 data on 15 year-olds who are enrolled either at LS or UPS level education and attend either public or private schools.⁷⁹ The study focuses on the educational expectations of students at public schools, as they are the ones that experience the transition processes described in this thesis. The methodology focuses mainly on comparing the educational expectations of UPS students with LS students under the same processes of transition. In other words, I compare the educational expectations of students that completed the transition under certain processes with their LS peers who are experiencing the same process of transition in the present. This comparison is relevant because, as mentioned earlier, PISA's data collection was implemented in March 2009, 2 months before the end of the academic year. This is the time in which LS students are facing the procedures of admission to the next educational level. It is relevant to mention that the LS sample may contain students that will not continue studying, either because they choose not to, because their socioeconomic background does not allow them or because they would not be selected by UPS level institutions. Nevertheless, the methodology construction allows me to compare students that may be experiencing the processes of admission and the mechanisms of selection with those that have successfully completed a transition to UPS, who have almost completed their fresher's year.

In the analysis I do not ignore the fact that the expectations of LS and UPS students may be different. As mentioned earlier, LS students may not be willing to continue studying to UPS level. It is also very likely that LS students may have lower expectations than UPS students who by having completed the transition could be more confident in their own capabilities to succeed. UPS students also have one extra year of education, which means that the options of education qualifications they can choose from are different from LS students. LS students have not completed LS yet; therefore they could still choose to keep it as their highest education qualification. UPS students on the contrary have completed compulsory

79 The PISA's 2009 sample contains 89.42 of students that enrolled at UPS level while the remaining 10.58 percent are at LS level. At public schools LS students represent 28.86 percent while UPS students 71.14 percent in the sample. On the contrary, at private schools LS students represent 14.72 percent while UPS students 85.28 percent.

education, so the lowest education qualification they can aspire for is tertiary education.

I believe that the type of transition process used where they live could affect the educational expectations of these two groups. However this may also relate to whether students are experiencing it in the present or have successfully completed it. Finally, given that educational expectations are expected to be higher amongst UPS students, I aim to observe which transition process's characteristics appear to allow for greater changes in terms of students' educational expectations.

Table 7.1 presents the variables used in the study (please refer to the methodology chapter for particular information on the data used). It is important to keep in mind that UPS students do not have the first education expectation category (LS level) as they have completed that education qualification already.

This analysis also uses the categorisation of transition process constructed in Chapter 5, which has four categories: MAC, MixAC, SBEE and SEE. As mentioned before, the differences between processes relates to the heterogeneity of their procedures and the extensiveness of their use of entry examinations. The analysis also includes other variables such as students' education level, to identify whether the student is enrolled at LS or UPS, and school funding, to identify students that attend public or private schools. Finally, the analysis uses the marginalisation index by State level provided by the National Council of Population (Consejo Nacional de Población., 2010); which defines the level of marginalisation into five categories. This characterisation of marginalisation is used as it is believed that the characteristics of the States where students live mediate how the different transition processes affect students' educational expectations.

Table 7.1 Variables used for the analysis of the relationship between education expectations and transition process

Variable		SOURCE and CODE	Description
Dependent variable	higher_Edu_expectation	Constructed (PISA): ec05q01a, ec05q01b, ec05q01c, ec05q01e, ec05q01f	1"LS" 2"UPS" 3"UG" 4"PG"
	ID	stidstd (PISA)	Identification code of the student
Identification Variables	schoolid	schoolid (PISA)	Identification code of the school
	Type_trans	Constructed (chapter 5)	1 "MAC" 2 "MixAC" 3 "SBEE" 4 "SEE"
	education_level	iscedl (PISA)	1"LS" 2"UPS"
	schoolfunding	Sostenimiento (PISA)	1"Public" 2 "Private"
Independent Variables	Marginalisation	CONAPO	Index of marginalisation divided by quintile: 1"very high" 2 "high" 3"medium" 4"low" 5 "very low"

Source: Own elaboration

The methodology has three main areas: 1) statistical descriptive analysis, 2) sensitivity analysis of student's education expectations under different transition processes and 3) sensitivity analysis of student's education expectations by transition processes and States' characteristics.

Statistical descriptive analysis

This analysis focuses on describing the educational expectation differences between LS and UPS students under different transition processes. First, I present the general picture of 15-year-olds educational expectations in Mexico by describing the education expectations of LS and UPS students. For this I show LS

and UPS students' expectation differences and analyse whether the observed representations are statistically significant different by performing a Chi-square test.

Second, I study the differences between LS and UPS students' expectations under different transition process. For this I perform Chi-square tests to compare the differences in the education expectation representation of LS and UPS students by process of transition. I also study whether LS and UPS students' distribution of educational expectations at different processes of transition are statistically different. For this I use Goodness of fit tests to observe the differences in the distribution of expectations among UPS when compared to the expectations of their LS peers by transition processes and calculate the expectation differences. This test is used also to observe which transition process allows for educational expectations to change between groups.

Sensitivity analysis of student's education expectations under different transition processes

I use sensitivity analysis with an ordered probit regression model (OPM) to investigate how students' chances of having high educational expectations could be affected by the different transition processes. For this analysis, I compare the education expectation probabilities of LS and UPS students by transition process. The analysis is based on the assumption that by comparing the expectations between the two groups, inferences can be made regarding the relationship between the different processes and students' expectations. It is also believed that by comparing the education expectation differences of UPS students at public versus private schools, inferences can be made about the transition process, as students in both groups made it to UPS but in the latter type of school students do not experience the specific processes of transition considered in this thesis. To do so, I perform two sensitivity exercises:

- The first sensitivity analysis compares LS and UPS students' expectations in public schools. I perform OPM to study how the expectations vary according to the level of education by transition process. I use the regression results and predicted probabilities for the sensitivity analysis and observe how, by changing the education level of students (LS-UPS)

under different transition processes, their education expectations probabilities are modified. This exercise is expected to provide insights on the effect that can be attributed to the transition processes experienced by UPS students.

- The second sensitivity analysis compares UPS students' expectations in public schools versus private schools. I will use the estimation of the education expectation probabilities of UPS students in public schools and quantify the extent to which the probability estimates vary when the estimation is done for UPS students in private schools. This analysis is used to add robustness to the interpretations that can be obtained through OPM of public schools only. Here I am looking into the differences between transitions contexts.

Sensitivity analysis of student's education expectations by transition processes and States' characteristics

I study students' chances of having higher educational expectations in relation to the level of marginalisation and type of transition process used where they live. I focus on observing the differences between LS students (that are facing the transition) and UPS students (that have completed the transition) in public schools. First, I describe how the education expectations of students varies according to the level of marginalisation of the State where they live by performing a Chi- square test of the differences in their representation. Secondly, I investigate whether the distributions of UPS students' expectations vary in terms of State marginalisation level and transition process, with respect to their LS peers. For this analysis I also perform Chi- square tests by relationship studied.

Lastly, I study how students' chances of having high education expectations could be affected by the different transition processes and levels of marginalisation in the State where they live. I make use of OPM and sensitivity analysis to observe the opportunity differences and perform one sensitivity analysis exercise. The sensitivity analysis compares LS and UPS students' expectations in public schools to observe the coefficient differences of marginalisation and process of transition upon the educational expectations of LS and UPS students.

The following subsection describes the methods in some detail.

7.1.2 The methods used in the study of students' educational expectations

I use quantitative methods to answer the research questions that guide the chapter. Here I present a general explanation of how each method works and why I selected them. I also explain how I performed the analysis and give insight into how the results are interpreted. The methods that I employ in this Chapter are: Chi-square tests of homogeneity; Chi-square goodness of fit tests, ordered probit model (OPM) and sensitivity analysis, discussed in detail below. Please note that the assumptions informing each method's use and details of the calculation used for each method can be consulted in Annex 2.

Chi-Square test of homogeneity

Chi-square tests are commonly used to investigate whether distributions of categorical variables differ from one another (Franke et al. 2012). The Chi-square test performed in this chapter is the homogeneity test. This is because the samples to compare (LS and UPS), as well as the types of transition processes (MAC, MixAC, SBEE and SEE) are independent from each other. Furthermore while PISA's sampling was designed to identify a representative sample of 15 year-olds in Mexico, the groups compared in my study are independent of PISA's design.

The Chi- squares tests of homogeneity do the following: 1) test the differences in the distribution of LS and UPS students' education expectations, 2) test the differences in the distribution of LS and UPS students' expectations by different transition processes and 3) test the differences in the distribution of LS and UPS students' expectations by different transition processes. A significant p value suggests that the distribution of educational expectations by category tested is statistically significantly in their difference from each other.

Chi-square goodness of fit tests

As presented in the previous chapter I also make use of the Chi-square goodness of fit test to compare whether the education expectations of UPS students are consistent with the known distribution of education expectations amongst LS students within the same transition process.

I additionally calculate the percentages of the differences between observed and expected frequencies for each educational expectation. When the result is equal to

zero that means that the differences are null. If the difference is negative, it means that there is an underrepresentation of UPS students at the education qualification chosen; while if the difference is positive it means that there is an overrepresentation of UPS population for the education expectation when compared to LS students. This test is used to identify which transition process allows for greater differences in the educational expectations of UPS students, when compared to their LS peers.

Ordered probit model

I use an ordered probit model (OPM) because the dependent variable and focus of analysis, education expectations, is ordered and categorical.⁸⁰ The dependent variable in the model is considered to be categorical because variables related to educational attainment are ordinal. For example: elementary education, high school diploma, college diploma and graduate or professional degree are categories that have an order even when the distance and value between them varies (Long and Freese 2006). The central idea underlying an ordered response is that the variable is latent, continuously and randomly distributed. This means that it cannot be assumed that those who give the same response have the exactly same attitude towards education. For more information on the model's assumption and calculations please see Annex 2.

The models used in the analysis are illustrated with the following equations, according to their use in the analysis of student's education expectations under different transition processes (equation 1) or students' education expectations by transition processes and States' characteristics (equation 2):

$$y^* = \beta_1 type_trans_i + \beta_2 education_level_i + \beta_3 schoolfunding_i + e \quad (1)$$

$$y^* = \beta_1 type_trans_i + \beta_2 education_level_i + \beta_3 marginalization_i + e \quad (2)$$

⁸⁰ The peculiarity of using an ordinal dependent variable is that it violates the assumptions of the linear regression models because the distance between the categories cannot be assumed to be equal.

Where y^* = Highest Education Expectations (EDU_EXP)

$y_i = 1 \quad \tau_0 = -\infty \leq y_i^* < \tau_1$, indicating the student expects to study up to LS

$y_i = 2 \quad \tau_1 \leq y_i^* < \tau_2$, indicating the student expects to study up to UPS

$y_i = 3 \quad \tau_2 \leq y_i^* < \tau_3$, indicating the student expects UG level

$y_i = 4 \quad \tau_3 \leq y_i^* < \tau_4$, indicating the student expects PG level

and

$type_trans_i$ = Type of transition process used in the State where the student lives

$education_level_i$ = Education level of students: LS and UPS

$schoolfunding_i$ = Variable related to the schools' funding (public or private) and modality.

$marginalization_i$ = Variable related to States' level of Marginalisation

e_i = Error term which are assumed to be normally distributed with a mean of zero and standard deviation of one.

Furthermore, the density function of y^* will be a set of cut points that are coefficients of the model (refer to Annex 1 for further information).

It is important to highlight a few points about how the regression results are interpreted. The coefficient results of categorical independent variables show the ordered probit-odds estimate of comparing one category to the rest, when all the other variables in the model are held constant. Finally, as the dependent variable has 4 categories (LS, UPS, UG and PG) the regression output includes 3 cut off points. Those 3 cut points of the latent variable differentiate the LS level category from the general UPS category (Cut 1), the UPS category from the UG category (Cut 2) and the UG from the PG category (Cut 3). These cuts are used to differentiate each educational expectation when values from the predicted variables are evaluated at zero. In addition, I perform a post-estimation test of equality to study

whether the coefficient results are statistically different from each other (for further information see Annex 2).

It is relevant to mention that for the analysis of students' educational expectations by transition processes and by States' characteristics I make use of interactive modelling. Interactive variables are used in quantitative methods when the researcher identifies that the effect of variable X on some dependent variable Y, is more complex than a linear-additive model can analyse. Interaction variables are therefore relevant in this study of the complex relationship between transition processes and students' expectations. Thus the analysis posits that the effect of the X variable(s), on the dependent variable, Y, depends upon a third set of independent variable(s), Z. In this research the effect of the type of transition process (X) on the education expectation (Y) may depend on a third variable which can be the level of marginalisation of the State in which the students live (Z).

Kam and Franzese (2007) suggest that the variable involved in interaction terms has multiple effects. In other words it is not constant, nor single. Hence, in general, the coefficients produced by interaction variables are not effects per se. They suggest two methods for interpreting interactions: a) differentiation, which involves certain additional calculus procedures, and b) the method of differences in predicted variables, which does not. I interpret the coefficients of the variables created by using differentiation, as it involves substitutions of the regression coefficients into the regression equation.

The investigation uses a set of 7 regression models to test the different interest relationships.

- Model 0 regresses the education expectations of students (the main interest variable) with the type of transition process, students' level of education and school funding.
- Model 1 regresses the main interest variable with the transition process for LS students at public schools.
- Models 2 regresses the main interest variable with the transition process for UPS students at public schools.

- Model 3 regresses the main interest variable with the transition process for UPS students at private schools.
- Model 4 regresses the main interest variable with the interactions between transition process, marginalisation level and education level.
- Model 5 regresses the main interest variable with the interactions between transition process and marginalisation level for LS students in public schools.
- Model 6 regresses the main interest variable with the interactions between transition process and marginalisation level for UPS students in public schools

Finally it is relevant to state that despite these models being useful for analysing the relationships between the transition processes and students' educational expectations, I do not expect to replicate the transition process as if in the real world. I am aware that many other factors, which can affect students' educational expectations, are not included. This awareness encouraged me to use an exercise that involves examining the sensitivity of the models to changes in its inputs. This may also add robustness to the interpretations that will be made as a result. The sensitivity analysis method is further explained below.

Sensitivity analysis

The simplest form of sensitivity analysis is to vary one value in the model by a given amount, and examine the impact that the change has on the model's results (Taylor 2009). This study examined how a model is sensitive to a (certain) unit change in one of the independent variables, which is known as one-way sensitivity analysis. Conversely, another type of sensitivity analysis, multi-way sensitivity analysis, examines the relationship between changes of two or more different parameters simultaneously. This approach is commonly used to show how the potential combination of values, within a given range, can cause the dependent variable to change (Taylor, 2009).

The sensitivity analysis is therefore commonly used in models where the explanatory variables are continuous. Nevertheless, in this chapter it is hypothesised that changes in the probabilities of students having certain

educational expectations relate to whether students have or have not experienced the process of transition. I use OPM and sensitivity analysis to study the effect differences produced by the processes of transition on the educational expectations of students. As a consequence of the type of sensitivity analysis used in this chapter, I run the regression models for the different groups separately and observe the differences both in the coefficients and probability predictions that are obtained. I perform a one-way sensitivity analysis only, as I am interested in observing the differences in the effect for UPS students in public schools compared to their relevant reference groups.

I perform three exercises of sensitivity analysis, each of which is discussed in more detail below.

- I investigate students' educational expectation differences between LS and UPS schools by examining the changes in the regression models 1 and 2 (regression coefficients and the probability predictions). The analysis observes which processes of transition allow for greater differences in the expectations of UPS students when compared to their LS peers.
- I investigate the educational expectation differences between UPS students that attend public schools versus private schools by examining the differences between regression models 2 and 3. The analysis observes which processes of transition allow for greater differences in the expectations of UPS students in public school when compared to their peers in private schools.
- I investigate LS and UPS students' expectation differences by marginalisation level and transition process. The sensitivity analysis is used to compare Models 6 and 5. This allows us to observe the effect that differences of marginalisation and the process of transition has on the educational expectations of students that have and have not completed the transition to UPS.

7.2 The education expectations of UPS students' under different transition processes

In this section the analysis focuses on observing whether there are differences in the educational expectations of students according to whether they have completed the transition to UPS level and the type of transition process used. As the transition processes studied in this thesis are performed within public schools, in this section I use PISA 09 data on public schools only. First I describe the education expectation differences between LS and UPS students. I then observe the educational expectation differences between the two groups under the different transition processes. Lastly, I compare the representation of students' educational expectations at each transition process to observe how the distributions may have changed.

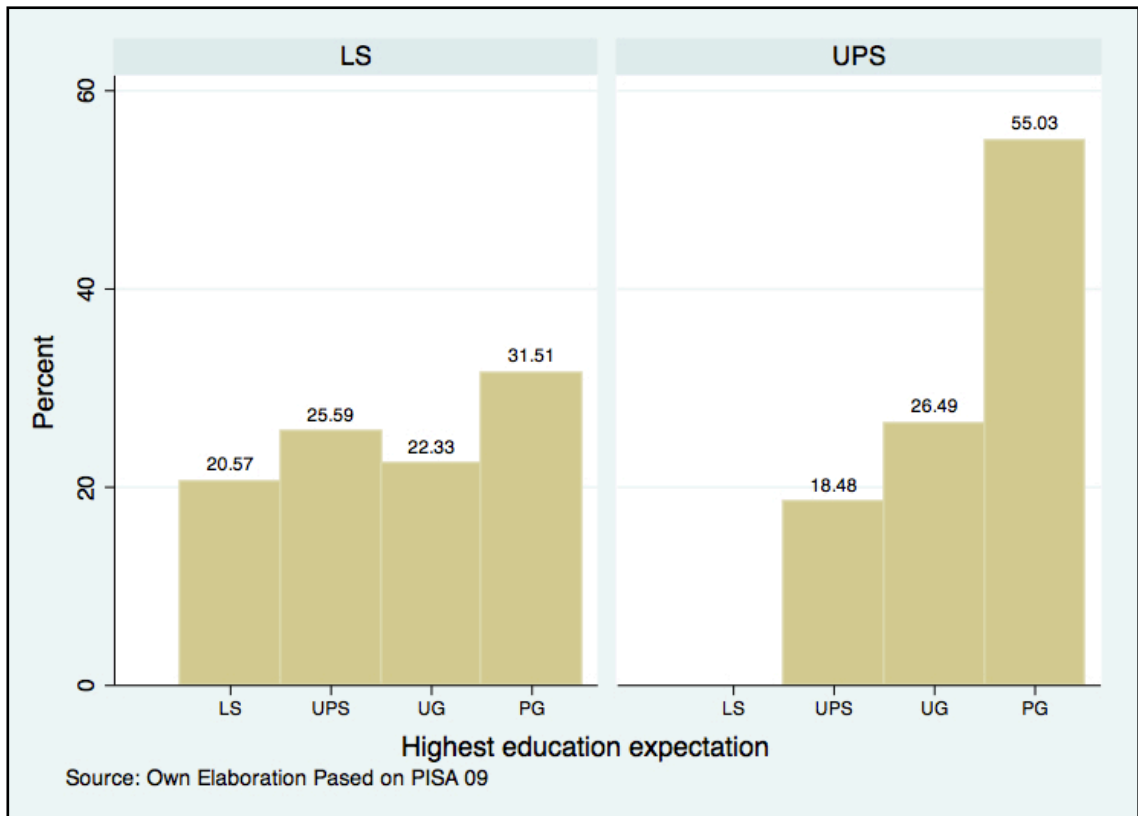
7.2.1 The education expectations of LS and UPS students

The responses of the 15 year-olds attending public schools in Mexico suggest that the educational expectations of the age group are high. The distribution of educational expectations is as follows: 48 percent of students respond that they expect to study until reaching PG level, 25 percent expect to reach UG level, 21 percent expect to complete upper secondary while 6 percent expect to complete LS only. Graph 7.1 disaggregates the educational expectation responses by the education level of the respondents. It is important to keep in mind that the educational expectation distributions of LS and UPS students are expected to be different.

The educational expectations of 15 year-olds vary according to whether they are LS or UPS students. It appears that the representation of students that do not expect to continue studying in both education levels is similar; 21 percent of LS students expect to reach only the education level they are studying, while 19 percent of UPS student expect to study up to UPS level only. Similarly, the expectation to reach an additional education level is similar among LS and UPS students; 26 percent of both LS and UPS students expect to reach the next education level. Nevertheless, for the case of LS this means studying up to UPS level while for UPS students it means UG level. Moreover, the expectation to reach UG degree among LS students is 22 percent which is 4 percentage points less than among UPS students. Finally,

the educational expectation that shows the greatest difference between LS and UPS is the expectation to reach PG level. Here 32 percent of LS student expect to reach this education level compared to 55 percent of UPS students.

Graph 7.1 Education Expectations of public school's students by education level attended



Three main outcomes can be highlighted from Graph 7.1. Firstly the educational expectations are quite evenly distributed among LS students. This observation may be related to the fact that the distribution of LS level is expected to be flatter due to an additional category in the distribution. Secondly, among UPS students the distribution of educational expectations varies greatly. More than half of UPS students have selected PG education as their expected education qualification and the representation of students progressively reduces for lower qualification levels. Thirdly, the differences in the educational expectations reported by 15 year-olds that are enrolled either at LS or UPS level suggests that completing the transition process (and having one additional year of education) may support students' confidence to reach high education qualifications. Thus students that are still facing the transition process (with one year less of education) have a greater

variation in their perceptions regarding the level of qualification they will be able to achieve. As the distribution of educational expectations is different according to students' education level it can be suggested that the transition to UPS could have a role within students' construction of educational expectations. Therefore, it is relevant to enquire whether the type of transition process experienced is associated with any specific variations between LS and UPS students' expectations.

7.2.2 The expectations differences between LS and UPS students by transition process

In Table 7.2 the representation of students' educational expectations by transition process and education level is presented. The educational expectations of LS students can be used as reference for the education expectations that 15 year-olds have within each context. On the contrary, the education expectations of UPS are seen as the expectations that the age group have after having successfully completed the transition to UPS level under different processes.

Table 7.2 Education expectations of LS and UPS students under different transition process at public schools

Transition Process	Expectations of LS students					Expectations of UPS students			
	LS	UPS	UG	PG	Total	UPS	UG	PG	Total
MAC	20.98	24.93	20.00	34.1	2,355	17.01	25.22	57.77	4,738
MixAC	24.89	25.15	23.87	26.09	1,173	20.20	27.56	52.24	3,346
SBEE	21.69	25.51	21.88	30.93	2,176	20.41	25.92	53.67	7,106
SEE	17.8	26.32	23.86	32.02	3,051	16.55	27.48	55.97	6,455
Total	20.57	25.59	22.33	31.51	8,755	18.48	26.49	55.03	21,645
Chi square test	Pearson chi2(9) = 53.3769 Pr = 0.000					Pearson chi2(6) = 66.0009 Pr = 0.000			

Source: Own elaboration based on PISA09

Table 7.2 shows that when using Chi-square tests, the differences in the representation of students' expectations under different transition processes are statistically significant for both education levels. This suggests that all types of transition process have an impact on the educational expectation differences. It is

also observed that LS students' expectations seem to be highest for those that use SEE processes, as here the representation of students expecting to get UG qualifications and beyond is 56 percent., This is followed by 54 percent in MAC, 52 percent in SBEE and 50 percent in MixAC. Moreover, the representation of LS students who expect to get an additional education credential is greater at SEE and SBEE transition processes, both with 26 percent, followed by MixAC and MAC with 25 percent. Finally, the greatest representation of the lowest expectations among LS students is found at MixAC, with 25 percent of students expecting not to gain any further qualifications, followed by SBEE with 22 percent, MAC with 21 percent and SEE with 18 percent. On the contrary, at UPS level students' expectations are higher at SEE and MAC with 83 percent of their students expecting to get UG qualifications and beyond, followed by MixAC and SBEE with 80 percent. In addition, the representation of UPS students that do not wish to get any further qualification is greater at MixAC and SBEE, followed by MAC and SEE with 17 percent.

Despite the difference in expectations by education level and transition processes being statistically significant, the magnitude of those differences is not particularly important. However a few findings are worth highlighting from Table 7.2:

- (i) The expectations of LS students are more evenly distributed among processes with heterogeneous procedures (MixAC followed by SBEE), than at processes with homogeneous procedures (SEE and MAC). Here the representation of students with higher education expectations is greater.
- (ii) As LS students that are experiencing heterogeneous procedures have varied expectations in relation to the different qualifications possible, it can be inferred that they may have become more aware of the progression difficulties and thus choose more carefully the level of qualification desired. Conversely, students that are experiencing simple procedures, and in particular those that do not have additional admission criteria, seem to be encouraged to expect to achieve the highest qualification possible.
- (iii) Regarding UPS level, more than 50 percent of students in all transition processes expect to reach the highest qualification possible. Nevertheless,

it is in the transition context with no additional admission criteria where this expectation has the greatest representation.

- (iv) The results of UPS students' expectations do not support the assumptions established. On the one hand students that completed the transition through MAC proportionally show higher education expectations, these students did not benefit from the reinforcement of making a successful transition through passing an entry examination. On the other hand, students that progressed through the most heterogeneous processes do not show higher education expectations, which suggests that those students did not feel reinforced by their successful transition into heterogeneous educational contexts.

I further analyse the education expectations differences between LS and UPS students at each transition processes by performing a Chi-square goodness of fit test. This test allows me to check whether the representation differences of students' expectations are relevant and statistically significant. Table 7.3 shows UPS students' expectations compared to their LS student peers at each transition process. Column B shows the proportion of educational expectations that UPS students would have if they had the same expectations as LS students at each transition process. It is important to keep in mind that as the expectations of LS students have one category extra, to make the data comparable I concentrated LS students' expectation to study LS and UPS into one. Table 7.3 also shows the expected frequencies of educational expectations amongst UPS students in column C; the observed or actual frequency of UPS students' expectations in column D, and the calculation of the difference in the expected and observed proportions by process of transition in column E. The latter difference shows which transition process seems to greater modify the education expectations distribution once UPS students complete the transition.

Table 7.3 Chi-square goodness of fit test: Differences between LS and UPS students' education expectations by Transition Process

Transition Process	Education Expectations				
	Education level	Percent expected	Expected frequency	Observed Frequency	Difference
MAC	UPS	46	2179.48	806	-0.63
	UG	20	947.6	1,195	0.26
	PG	34	1610.92	2,737	0.70
	chisq(2) is 2038.84, p = 0				
MixAC	UPS	50	1673	676	-0.60
	UG	24	803	922	0.15
	PG	26	870	1,748	1.01
	chisq(2) is 2067.37, p = 0				
SBEE	UPS	48	3410.88	1,450	-0.57
	UG	22	1,563	1,842	0.18
	PG	31	2,203	3,814	0.73
	chisq(2) is 2825.29, p = 0				
SEE	UPS	44	2840.2	1,068	-0.62
	UG	24	1549.2	1,774	0.15
	PG	32	2065.6	3,613	0.75
	chisq(2) is 2801, p = 0				

Source: Own elaboration based on PISA09

Results from Table 7.3 show that, compared to LS students, UPS students are overrepresented in their expectation to study at PG level. This overrepresentation is particularly high at MixAC transition processes where students that expect to reach PG level appear to be 101 percent overrepresented, followed by SEE (77 percent overrepresented), SBEE (73 percent overrepresented) and MAC (70 percent overrepresented). Furthermore, all transition processes appear to have an underrepresentation of students with the lowest education expectations. This underrepresentation appears more important at MAC where 63 percent of students with the lowest education expectations are underrepresented, followed by SEE (62 percent), MixAC (60 percent) and SBEE (57 percent). Interestingly in all transition processes the representation difference in the proportion of students expecting to get an UG degree is not of great magnitude.

Overall, I can summarise results from Table 7.3 as follows:

- (i) There is little variation in the pattern of differences between UPS level compared with LS students' educational expectations at different transition processes.
- (ii) Nevertheless the SBEE transition process, which makes use of entry examinations and has heterogeneous procedures, has the most similar representation of educational expectations. Conversely, MixAC transition processes, which also uses examinations and has the most heterogeneous procedures, shows the largest expectation differences between LS and UPS students.
- (iii) Despite my assumption that the extensiveness in the use of entry examinations and the heterogeneity of the transition processes could impact on LS and UPS students' differential expectations, the results so far suggest that this may not be the case. I expected MAC to allow for fewer variations between LS and UPS students expectations, however the lack of additional admission criteria and the use of homogeneous procedures appears to allow for the second largest gap in the expectations of students.

Taken together, the results suggest the need for further investigation into the associations between the transition processes used and the differences in the education expectations between LS and UPS students. In the following subsection I study how the different processes of transition could affect students' chances to expect to reach different educational qualifications.

7.3 The transition processes' effect on UPS students' educational expectations

In this subsection I analyse the relationship between the educational expectations of 15 year-old UPS students in terms of the different transition processes. To consider this relationship I make use of OPM and sensitivity analysis. The main focus of the analysis is to compare the expectations of UPS students who completed the transition under the different processes with the relevant 15 year-old group who have not. Four regression models are used in this analysis (Model 0, 1, 2 and 3). Model 0 is used to present a general picture of the relationships between the variables to be analysed. Model 1 is used to generate inferences about how educational expectations are affected by the processes of transition experienced in

the present by LS students. Model 2 is used to generate inferences on how the education expectations of UPS students are affected by the process of transition experienced. Finally, Model 3 is used to observe the differences in the educational expectations of students that completed a transition outside the processes studied in this thesis.

Sensitivity analysis is used to compare the education expectations of UPS students at public school with the two relevant groups. Consequently, I perform two sensitivity analysis exercises:

- I compare the educational expectations of LS versus UPS students at public schools: Model 1 versus Model 2.
- I compare the educational expectations of UPS students at public schools versus UPS students at private schools: Model 2 versus Model 3.

7.3.1 A sensitivity analysis of the transition processes' effect differences between LS and UPS students in public schools

The regression results of all models are presented in Table 7.4. Model 0, which regresses education expectations with the type of transition process used, the education level and school funding, shows that when every other factor is constant, the SEE transition process is associated with an 11 percent increase in the probability of expecting higher when compared to the MAC transition process. Conversely, MixAC and SBEE are associated with a decrease in 13 and 9 percent, respectively of the probability of expecting higher when compared to the MAC transition process. Furthermore, undertaking post estimation tests of equality I tested for statistical differences between parameters. When I tested the particular coefficients it was found to be significant that both MAC and SEE show higher educational expectation probabilities than MixAC and SBEE. Furthermore, it was found that that SEE's probability for supporting higher educational expectations is greater than MAC's. Moreover, MixAC and SBEE did not show statistically significant differences in the association of their coefficients. Therefore, it is not possible to state that there is difference in the strength of their coefficients and their association with students' education expectations.

Table 7.4 Regression result of the ordered probit models 0, 1, 2, and 3

Variable	Model 0	Model 1 LS-public schools	Model 2 UPS-public schools	Model 3 UPS-private schools
MixAC	-0.132 (-6.47)	-0.16*** (-4.18)	-0.13*** (-5.04)	-0.11** (-1.52)
SBEE	-0.092 (-5.36)	-0.05** (-1.63)	-0.11*** (-5.11)	-0.277*** (-4.16)
SEE	0.011 -0.12	0.08 (-0.84)	-0.02** (-1.08)	-0.033 (-0.47)
UPS level	0.818 (-58.75)			
Private school	0.387 (-17.91)			
cut1 Constant	0.0297158 (-65.37)	-0.85 (-34.66)	-0.96 (-52.97)	-1.315 (-22.47)
cut2 Constant	1.087719 (-7.17)	-0.123 (-5.22)	-0.191 (-10.99)	-0.522 (-9.46)
cut3 Constant	1.807536 (-36.33)	0.456 (-19.23)		

Source: Own elaboration based on OPM including sample weights. Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% respectively. Standard errors are reported in the parentheses.

Model 0 also show results on the association between students' level of education and the school funding. The results show that being enrolled at UPS level compared to LS level is associated with an 81 percent increase in the chances of students expecting higher. Regarding school funding, the results suggest that to attend a private school is associated with a 38 percent increase in the chances to expect higher education credentials, compared to students that attend public schools.

Overall, Model 0 outlines a context where the LS to UPS transition process with the most extensive use of examinations is associated with higher chances of students having higher educational expectations compared to processes with no additional admission criteria. Also, as expected, having completed the transition appears to dramatically increase students' chances to expect higher educational expectations compared to students that are still at LS level. Lastly, students that attend private

schools are also seem more likely to have higher educational expectations than their counterparts in public schools; nevertheless the effect is not as strong as whether they have completed the transition to UPS level.

Model 1 measures the relationship between educational expectations and transition process for LS students that attend public schools. The results show that only those under the SEE transition process have an 8 percent more chance of expecting higher compared to MAC. MixAC and SBEE are associated with a decrease in the chances of LS students expecting higher educational credentials (16 and 5 percent, respectively) compared to the MAC process. The tests performed for statistical differences between coefficients confirm that SEE is associated with promoting higher expectations than MAC, as SEE's coefficient is statistically significant greater. Furthermore, the coefficients of SEE and MAC are statistically significant greater than SBEE's and MixAC's, while the coefficient of SBEE is statistically significant greater than MixAC. Therefore, it can be inferred that LS students' chances of having higher educational credentials could be greater at SEE followed by MAC, while smaller at SBEE followed by MixAC.

The results of Model 1 support the hypothesis that homogeneous procedures may promote higher education expectations in students that experience the transition in the present. Moreover, the results suggest that the more heterogeneous the mechanisms and procedures of the processes, the less likely it is for LS students to have higher expectations.

However, the results of Model 1 do not support the assumption that the more extensive the use of examinations are, the more discouraged LS students may be to have high education expectations. This because, on one hand, the context with the most extensive use of examinations shows the strongest positive effect in promoting higher educational credentials. On the other hand, the processes that also make some use of examinations SBEE and MixAC, do not show the pattern expected. The use of examinations is more extensive at SBEE than at MixAC, so it was expected that the chances of LS students having higher education expectations was likely to be smaller at SBEE than at MixAC, which does not hold in the results.

Considering the results of Model 1, the following can be inferred:

- (i) The effect of the process of transition on students' educational expectations is mediated most importantly by the heterogeneity of the procedures.
- (ii) LS students in SEE and MAC may benefit from the clarity that homogeneous procedures could provide and, as result, their chances of having higher expectations could be greater than at processes with heterogeneous procedures.
- (iii) At SBEE and MixAC processes, which make use of examinations to some extent, the more heterogeneous the procedures the less likely it is for LS students to have high expectations. It is likely that students in MixAC would face less clarity in what schools may request examinations and what particular procedures have to be followed. Conversely, LS students in SBEE would at least know that certain school modalities request examinations. Consequently, LS students in SBEE may feel more confident in the process of transition than students at MixAC and ergo have greater chances to have higher educational expectations.

The results of Model 2, which regresses educational expectations and transition process for UPS students that attend public schools, are as follows. The coefficients for all transition processes on educational expectations are negative compared to MAC. SEE is associated with a 2 percent decrease in UPS students' chances to expect higher educational credentials compared to UPS students in MAC. MixAC and SBEE are associated with a decrease in 13 and 11 percent, respectively. The tests performed for statistical differences between parameters confirm that UPS students in MAC are associated with having higher educational expectations than SEE, SBEE and MixAC UPS students. Also SEE's coefficient is statistically significant greater than the coefficients of SBEE and MixAC. Conversely, the coefficients of SBEE and MixAC are not statistically significant different from each other.

The results contradict the assumption that having completed the transition to UPS through processes with extensive use of examinations and/or heterogeneous procedures, this would have positive effects on increasing students' chances to expect higher. Instead, UPS students in MAC who were not required to sit any entry examinations and experienced homogeneous procedures, showed the highest

chances of expecting higher. It can be inferred that students that completed the transition to UPS level may feel more encouraged to continue studying when they faced certainty in the admission procedures to UPS level and when they were not tested or asked to compete for a place.

It is worth highlighting that the difference in the coefficients of MAC (the process with no additional admission criteria) and SEE (the process with the most extensive use of examinations) are very small. Therefore, no conclusive inference can be made regarding whether the use of entry examinations has a relevant negative coefficient effect on students' educational expectations after the transition is completed.

The results of Model 2 can be summarised as follows:

- (i) The effect of the process of transition on UPS students' educational expectations could be mediated by the heterogeneity of the procedures. Students that completed the transition through MAC and SEE show greater chances of having higher educational expectations than students at MixAC and SBEE. Nevertheless, no statistically significant differences were found at MixAC and SBEE.
- (ii) No conclusive findings are obtained regarding the effect that the use of entry examinations may have on students that completed the transition. The differences observed are not of great magnitude, which suggests the need for further investigation into the differences between processes.

Graph 7.2 shows the prediction of educational expectations of Models 1 and 2. The graph shows the average educational expectation prediction for every expectation possible.

The educational expectations predictions of Model 1 for LS students are as follows:

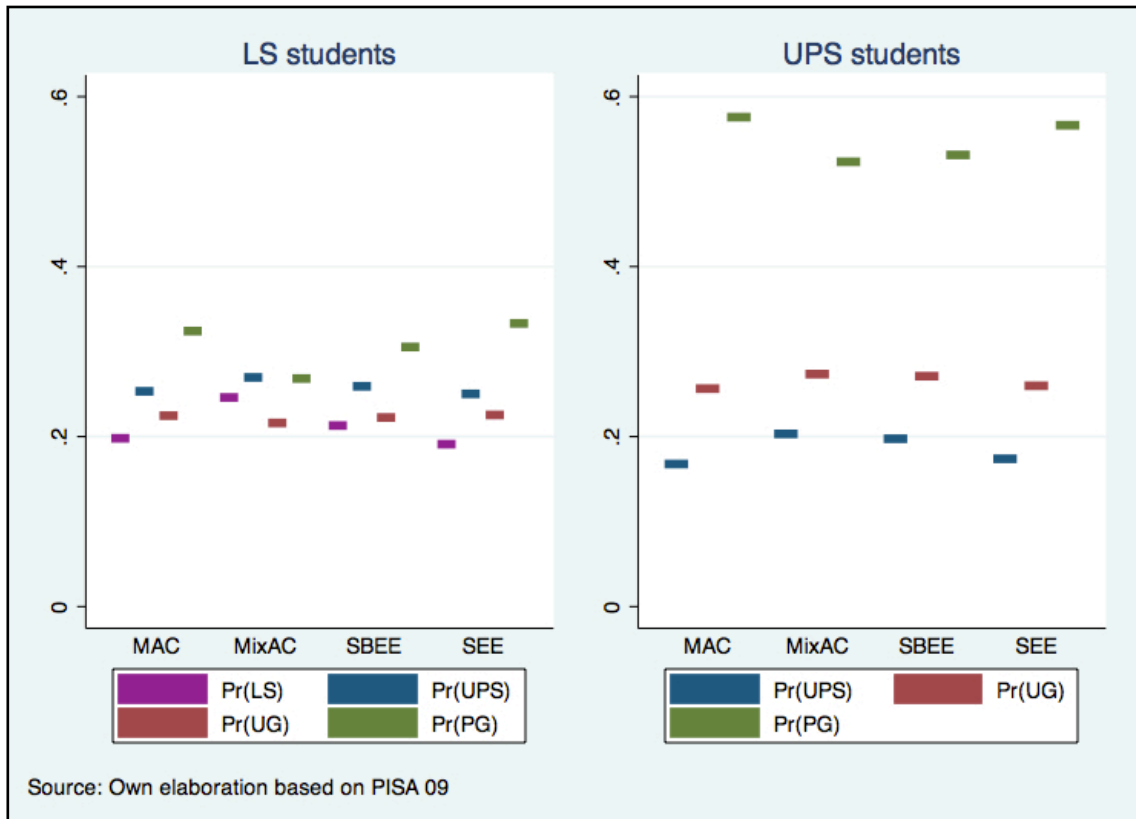
- LS students show on average a 21 percent chance of having LS level as their highest education qualification. The expectation to study LS only is greater at MixAC (24 percent) followed by SBEE (21 percent), while the expectation for this education level amongst LS students at MAC and SEE is relatively the same (19 percent).

- On average, LS students show a 26 percent chance of having UPS level as their highest education qualification. The expectation to study up to UPS level is very similar at all transition processes although slightly higher at MixAC (27 percent).
- LS students on average show a 22 percent chance of having UG level as their highest education qualification. The expectation to study an UG degree is virtually the same in all transition processes, although slightly higher at SEE (23 percent).
- On average, LS students show a 31 percent chance of having a PG degree as their highest education qualification. This expectation is the greatest at SEE (33 percent) followed by MAC (32 percent), SBEE (30 percent) and MixAC (26 percent).

UPS students predicted probabilities are as follows:

- On average, UPS students show an 18 percent chance of having UPS level as their highest expected education qualification. The expectations for UPS level are greater at MixAC (20 percent) followed closely by SBEE, while smaller at SEE (17 percent) and MAC (16 percent).
- UPS students show an average of a 26 percent chance of expecting to reach UG level. The expectation to reach up to UG level is greater at MixAC (27 percent) followed closely by SBEE, SEE and MAC (26 percent).
- On average, UPS students show a 55 percent chance of having a PG degree as their highest education qualification. This expectation is greater at MAC (58 percent) followed by SEE (57 percent) and smaller at MixAC, followed by SBEE (52 and 53 percent respectively).

Graph 7.2 Education expectations predicted probabilities: differences between LS and UPS at public schools



Overall, from Graph 7.2 the following points can be highlighted.

- (i) The probabilities of both LS and UPS students showing larger differences by transition process are in terms of the highest expectation possible (PG) followed by the lowest expectation possible (LS level for students that have not completed the transition and UPS level for students that have completed it). It can therefore be inferred that the processes of transition differences are more important for students at the highest and lowest ends of the educational expectation distribution.
- (ii) The educational expectation probabilities of LS for the different education options are closely predicted. Nevertheless, the expectation to study up to PG degree shows the greatest variation by transition process. In particular, the expectation difference for PG level between MixAC compared to the rest of the processes is important. A possible explanation for this is that students that are facing the most heterogeneous transition process

(MixAC) are less likely to expect to reach the highest education credential as a result of the uncertainty about their chances to succeed.

- (iii) The educational expectations of students that have completed the transition to UPS show a greater variation compared to those at LS. Having completed the transition to UPS is not only associated with greater chances of expecting higher, as Model 0 shows, but adds more variation to the probabilities of the different education options. This suggests that having completed the transition strongly affects students' perceptions about their future.
- (iv) Amongst UPS students, the expectation to obtain a PG degree as the highest educational credential shows the largest variation by transition process. The predictions suggest that students that experienced simple procedures and mechanisms are more likely to have the highest educational expectation possible, while students that experienced heterogeneous procedures are more likely to expect to reach either UPS or UG degree.
- (v) Overall, there is a pattern in the education expectations of LS students that prevails at UPS. The pattern divides the transition processes into two groups. The group of MAC and SEE, where students have greater educational expectation probabilities for the highest qualifications; and the group of SBEE and MixAC where students show greater chances of expecting to reach lower education qualifications. Despite that, some transition processes allow for greater educational expectations. In the first group, LS students at SEE showed the greatest chance of expecting to reach PG level. Conversely, after the MAC transition, LS students show greater chances than their UPS peers in SEE to expect the same. It can be inferred that the use of entry examinations, instead of supporting students' confidence in their capabilities, may make students slightly more aware of the difficulties of the educational progression. In the second group, LS students chances of expecting to reach PG education at MixAC were significantly smaller than at SBEE. At UPS level, the gap between the two processes narrows, although UPS students at MixAC continue to have lower educational expectations. It can be inferred that having completed

the transition to UPS in MixAC may be associated with a small improvement in students' perceptions that they can expect to reach high qualifications.

I further explore the differences in students' expectations under different transition processes by performing a sensitivity analysis. Two sensitivity analyses are performed: first I study the difference between LS and UPS students (Model 2 versus Model 1), and second I consider the differences between UPS students in public and private schools (Model 2 versus Model 3).

Table 7.5 presents the coefficient differences between Models 1 and 2 as well as the differences in their predictions.⁸¹ The column coefficient difference shows the difference between Model 1 and 2 by the type of transition process. Please note that the difference for MAC's category is not included as it is the reference category in the regression analyses. The values presented in this column can be interpreted as the differences in the UPS students having higher educational expectations compared to LS students within each process. In addition, the following columns calculate the differences in the prediction of probabilities of Models 2 versus 1 for each educational expectation.

Table 7.5 Sensitivity Analysis: Predicted probabilities differences between LS versus UPS at Public school

Transition process	Coefficient difference Model 2 versus Model 1	Difference in the prediction of probabilities UPS versus LS at Public school		
		UPS	UG	PG
MAC	n.a	-0.09	0.03	0.25
MixAc	0.03	-0.07	0.06	0.26
SBEE	-0.06	-0.06	0.05	0.23
SEE	-0.10	-0.08	0.03	0.23

Source: Own calculations with PISA09

Please note that Table 7.5 does not present the calculation for the prediction of LS level expectations as there is no reference in Model 2. Furthermore, in the

⁸¹ The predictions of probabilities can be consulted in annex 2

interpretation of results a positive number suggests that the prediction of expectations is higher for UPS students. The analysis observes which processes of transition allow for greater differences in the expectations of UPS when compared to their LS peers.

The results of the coefficient differences presented in Table 7.5 suggest that at SBEE and SEE processes the effect for UPS students is greater than for LS students, compared to MAC. On the contrary, at MixAC the effect on UPS students is smaller than for LS students compared to MAC. Moreover, the magnitudes of the differences suggest that when every other fact remains constant, SEE allows for the greatest differences between LS and UPS students expectations (compared to MAC), followed by SBEE and MixAC. This can be interpreted as follows.

- (i) SEE appears to have a stronger positive effect on LS students' chances of expecting higher educational credentials than LS students at MAC. At UPS level that effect reverses as UPS students at MAC show an advantage over UPS students in SEE. The differences between SEE and MAC transition processes suggest that there is change of 10 percent. It can be inferred that MAC students could benefit from the lack of admission criteria during their transition, as they appear to have higher educational expectations.
- (ii) The SBEE transition process shows the second strongest difference in the effect of the transition process on the chances of having higher expectations among UPS students versus LS students (compared to MAC). Both LS and UPS students showed a decrease in their chances of expecting higher compared to MAC students; nevertheless that effect was stronger amongst UPS students. The difference in the coefficient for SBEE suggests that completing the transition could decrease the chances of UPS students expecting higher when compared to LS students. Therefore having completed the transition in a process that uses some form of entry examinations and has heterogeneous procedures may promote UPS students' chances to expect higher compared to their peers at MAC.
- (iii) Lastly, MixAC is the only process where the effect of the transition process is positively stronger at UPS level when compared to LS having MAC as reference. However, the effect in both cases is negative compared to MAC.

This suggests that having completed the transition to UPS level through a process that has the most heterogeneous procedures and makes use of entry examinations could, to some extent, reduce the negative difference of LS students having higher educational expectations compared to peers at MAC.

Table 7.5 also shows the difference in the prediction of probabilities for UPS students versus LS students at public schools. UPS students in all transition processes have a smaller chance of expecting to reach UPS level than LS students. Moreover, UPS students in all processes show greater chances of expecting to reach UG or PG degrees than their LS peers. The differences do not seem of great magnitude; however, if we observe them by transition process they suggest a trend where MAC, followed by SEE, show greater differences between UPS and LS students in the expectations for UPS level; while for the expectation to reach PG degree the differences are more important at MixAC followed by MAC.

If we analyse the expectation differences separately, we observe the following. The probability difference between UPS and LS students to expect to only reach UPS level appears to be reduced more in MAC and less at MixAC. Regarding the expectation to reach UG level, UPS students in MixAC and SBEE appear to have greater differences compared to LS students. Lastly, the expectation to reach PG level appears to have the most important variation by transition process and the gap seems greater at MixAC, followed by students at MAC.

Overall the results in Table 7.5 suggest that UPS students who completed a transition through examinations may not benefit from reinforced expectations as expected. However, UPS students who experience the most heterogeneous procedures may show important differences in their expectations after completing the transition. The case of MAC process is interesting as it uses homogeneous procedures and no entry examination filter, which the results suggest could have a positive relation in mediating the differences between UPS and LS students' expectations.

7.3.2 A sensitivity analysis of the transition processes' effect differences between UPS students in public schools versus private schools

To further explore the expectations of students under the different transition processes, I perform an additional sensitivity analysis exercise. I compare the educational expectations of students that completed the transition in public schools with those that enrolled into a private school, who did not experience the processes explored in this thesis. For this I run an additional model for UPS in private schools (Model 3). The results of Model 3 can be consulted in Table 7.4.

It is important to keep in mind that the results of this model have to be interpreted with care. The model provides information about how the educational expectations of UPS students behave in private schools within the same context as UPS students in public schools. In other words, Model 3's results show the relationship between the transition process categories as a context, but not the processes themselves. Hence, the coefficient results of Model 3 are used only for reference.

The results from Model 3 show that when every other factor remains constant, all reference contexts show a negative association with students' chances to expect to reach higher educational expectations, compared to students that live in a MAC context. SBEE is associated with a 27 percent decrease in students' chances of expecting to reach higher educational expectations with respect to peers in MAC context. Moreover, MixAC is associated with an 11 percent decrease in the chances of students expecting higher educational credentials when compared to students in MAC context. Lastly, the SEE transition process is associated with a 3 percent less chance of expecting higher than students in MAC context.

The sensitivity analysis of the expectation differences between UPS students that attend public schools versus private schools under different processes/contexts of transition is presented in Table 7.6. As for the differences between LS and UPS students, I present the coefficient differences between Models 2 and 3, as well as, the differences in their predictions. The coefficient differences show that compared to UPS in public schools, the effect of the context versus the process is strongest at SBEE, while for MixAC and SEE the coefficient differences of context versus process are very small. This suggests that UPS students in SBEE may have a different trend in their expectations differences when compared to MAC. The difference between

SBEE's process versus context suggests that students in public schools may have less chances of having higher educational expectations than their peers in private schools, when compared to MAC.

Table 7.6 Sensitivity Analysis: Predicted probabilities differences between UPS students public schools versus private school

Transition process	Coefficient difference	Difference in the prediction of probabilities of UPS at public schools versus private schools		
	Model 2 versus Model 3	UPS	UG	PG
MAC	n.a	0.07	0.05	-0.02
MixAc	0.02	0.09	0.05	-0.18
SBEE	-0.17	0.05	0.02	-0.13
SEE	-0.01	0.07	0.05	-0.12

Source: Own calculations with PISA09

The results of the difference in the prediction of probabilities of UPS at public schools versus private schools suggests the following. In all process versus reference context comparisons, UPS students in public schools show higher chances of expecting to reach UPS and UG levels; while UPS students in private schools show greater chances of expecting to reach PG level.

If we analyse the expectation differences separately we observe that, for the expectation to reach UPS, the difference is smaller at SBEE. In other words, in SBEE UPS students in public schools show the smallest gap compared to those in private schools. In addition, the expectation to reach UG shows the smallest gap in SBEE while in the rest of the contexts the differences are of the same magnitude. Lastly, the expectation gap to reach PG is the greatest at MixAC while the smallest at MAC.

The results of this second sensitivity analysis exercise are analysed in conjunction to the findings of the first sensitivity analysis to draw the following inferences:

- In MixAC important gaps are found between students that experienced the transition and those who did not, as well as between LS and UPS students. MixAC showed the greatest differences between LS and UPS students in the expectation for PG level study; while the comparison between public

versus private schools showed the greatest gaps in the expectation to reach UPS and PG levels. It can be inferred that the heterogeneity in the procedures could make a difference to students' expectations by making them more likely to expect to reach the highest education qualification, However, these expectations appear very differently in students from private schools who tend to expect to reach higher.

- In MAC, the UPS students' expectations in public schools are the closest to those of their peers in private schools. This suggests that the expectations in that context tend to be highest among students, regardless of the type of funding of the school that they attend.
- In SBEE, the differences between UPS students in public schools are very small compared to students in private schools. Moreover, the differences between LS and UPS students in SBEE remain the smallest for the expectation to reach UPS and PG level. Therefore, it can be suggested that there is a trend where no important differences in the expectations of 15 year-old students can be found in SBEE. Here they remain very similar regardless of whether they completed the transition to UPS under the process. In SEE, the process with the most extensive examinations, there was not an important gap in the expectations of UPS versus LS students, nor an important gap between UPS students in public schools versus public schools. Is important to keep in mind that the expectations in SEE were found to be high, therefore it can be inferred that 15 year-olds in this context tend to show similar and high educational expectations regardless of whether they are facing the transition (LS students), have completed the transition (UPS in public schools) or have progressed to UPS without facing the entry examination admission of SEE.

The results presented so far indicate that students may have a pattern that guides how their expectations behave in the processes analysed. Therefore, it is relevant to observe how students' expectations vary according to where they live. This analysis is important because as explained in Chapter 5 the States that use each type of transition processes are dissimilar and more importantly because the characteristics of the States where students live have proven to affect students

motivations in Mexico (Instituto Nacional para la Evaluación de la Educación, 2011).

7.4 The State's effect on UPS students' education expectations

In this subsection I study the educational expectation differences between LS and UPS students in public schools. In particular, I enquire whether their differences are associated with the type of process used in the transition to UPS level and the characteristics of the State where students live. To classify States according to their characteristics I use the five levels of marginalisation described by CONAPO (see Chapter 3 for more information).

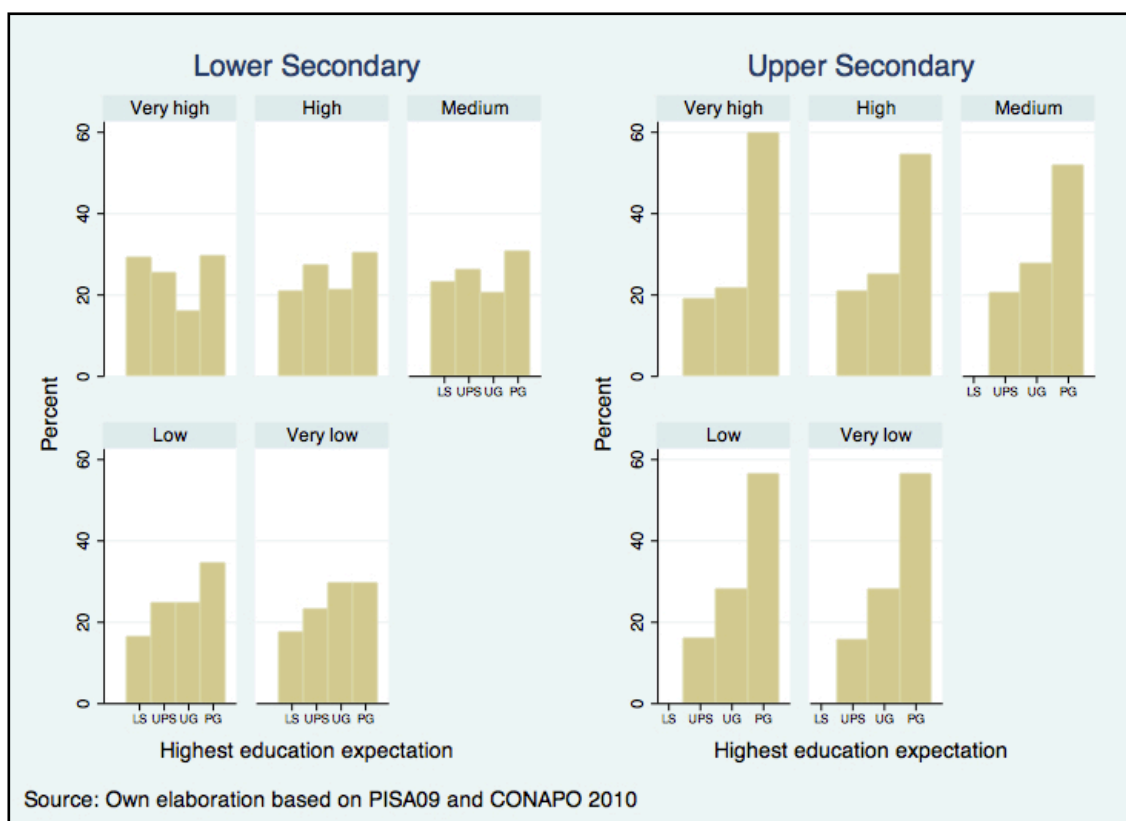
In this section I first describe the education expectation differences between LS and UPS students by level of marginalisation. I also describe the educational expectation differences between the two groups by marginalisation levels, under the different transition processes. Lastly, I study the differences in UPS students' chances to expect higher educational credentials according to levels of marginalisation and the type of transition process used where they live.

7.4.1 Students' educational expectations by States' marginalisation

Graph 7.3 presents the distribution of students' educational expectations in public schools by the level of education they attend and the marginalisation of the State where they live. It can be observed that LS students' expectations are more evenly distributed than UPS students' expectations, even when they are divided by marginalisation. A few points can be highlighted from the differences between the two groups. LS students' expectations do not show a particular trend that relates to the marginalisation of the State where they live. However LS students that live in States with low and very low levels of marginalisation show a more defined pattern, where the concentration of expectations is greater for the highest education credentials. On the contrary, UPS students' expectations seem to be more concentrated in reaching the highest education credentials possible (PG), the more marginalised the State where they live. It also highlights that in the most marginalised States, students show smaller representation for the expectations to reach UPS and UG compared to States with lower levels of marginalisation. This

result is contra-intuitive, as students that live in highly marginalised States would be expected to have lower expectations than their peers in better contexts. This is because students that live in more favourable contexts have greater chances to achieve higher levels of education (Consejo Nacional de Población, 2011, Instituto Nacional para la Evaluación de la Educación, 2008).

Graph 7.3 Educational expectations by education Level and Marginalization



In addition, the differences between LS and UPS students' expectations by transition process and marginalisation are disaggregated in Table 7.7. This table shows the results of the Chi-square tests for every relationship. The first level of the table shows the general differences between LS and UPS students by level marginalisation of the State where they live, while the following levels present the same at each process of transition.

Table 7.7 Representation of students' expectations at public schools by level of marginalisation and type of transition process

Educational expectation s	LS students					UPS Students				
	Very High	High	Mediu m	Low	Very Low	Very High	High	Mediu m	Low	Very Low
LS	29.25	20.94	22.92	16.33	17.59	n.a	n.a	n.a	n.a	n.a
UPS	25.24	27.4	26.12	24.57	23.26	18.9	20.92	20.37	15.87	15.56
UG	16.06	21.34	20.28	24.68	29.52	21.45	24.83	27.72	27.88	28.01
PG	29.45	30.32	30.69	34.41	29.63	59.65	54.25	51.91	56.25	56.43
Total	1,046	2,292	1,815	2,755	847	1,963	5,582	5,126	6,603	2,371
Chi-square test	Pearson chi2(12) = 137.5487, Pr = 0.000					Pearson chi2(8) = 117.7399, Pr = 0.000				
MAC										
LS	28.79	17.14	15.07	16.02	20.98	n.a	n.a	n.a	n.a	n.a
UPS	25.03	25.43	26.1	24.22	24.93	20.05	19.34	14.77	15.3	17.01
UG	16.5	19.71	21.69	23.37	20	21.33	19.5	27.92	28.31	25.22
PG	29.68	37.71	37.13	36.39	34.1	58.62	61.15	57.32	56.39	57.77
Total	903	350	272	830	2,355	1,247	641	745	2,105	4,738
Chi-square test	Pearson chi2(9) = 72.8601, Pr = 0.000					Pearson chi2(6) = 42.7364, Pr = 0.000				
MixAC										
LS	24.24	31.26	20.95	14.04	24.89	n.a	n.a	n.a	n.a	n.a
UPS	32.73	25.44	22.22	22.47	25.15	18.96	24.36	16.36	17	20.2
UG	13.94	20.58	23.49	43.26	23.87	24.4	26.52	30.22	30.96	27.56
PG	29.09	22.72	33.33	20.22	26.09	56.64	49.11	53.42	52.05	52.24
Total	165	515	315	178	1,173	791	1,297	599	659	3,346
Chi-square test	Pearson chi2(9) = 72.8601, Pr = 0.000					Pearson chi2(6) = 32.6358, Pr = 0.000				
SBEE										
LS	32.17	23.33	22.47	13.88	27.07	n.a	n.a	n.a	n.a	n.a
UPS	26.57	25.11	26.71	23.14	28.57	16.9	22.58	20.37	17.63	22.95
UG	13.29	23.48	19.04	25.55	24.81	21.65	24.05	27.63	28.19	26.23
PG	27.97	28.08	31.78	37.42	19.55	61.45	53.37	52	54.18	50.82
Total	143	673	730	497	133	716	2166	2298	1316	610
Chi-square test	Pearson chi2(12) = 52.6903, Pr = 0.000					Pearson chi2(8) = 39.7132, Pr = 0.000				
SEE										
LS	20.2	16.78	16.35	16.42	17.8	n.a	n.a	n.a	n.a	n.a
UPS	28.62	25.84	26.15	22.2	26.32	20.41	19.08	15.33	10.62	16.55
UG	21.65	21.48	25.61	26.12	23.86	27.57	29.77	26.83	27.22	27.48
PG	29.53	35.91	31.9	35.26	32.02	52.02	51.15	57.84	62.16	55.97
Total	1,104	298	1,113	536	3,051	1,984	786	2,583	1,102	6,455
Chi-square test	Pearson chi2(9) = 22.2004, Pr = 0.908					Pearson chi2(6) = 66.6104, Pr = 0.000				

Source: Own calculations based on PISA09

The relationship between marginalisation and expectations were proven to be statistically significant for both LS and UPS students. This suggests that the differences observed in the representation of students' expectations are

statistically significant different from each other. Therefore it can be expected that there is an association between how LS and UPS select their expectations and the level of marginalisation of the State where they live.

The relationship between students' educational expectations and marginalisation by the type of transition process and level of education were, in most of the cases, statistically significant. The only exception is the relationship between expectations and marginalisation amongst LS students in SEE. The results for this case indicate that there is no statistically significant relationship between the marginalisation of the State where students live and their educational expectations (Chi-square with nine degrees of freedom = 22.2004, $p = 0.908$). This means that for LS students that will be facing SEE, the marginalisation of where they live does not seem to have a relevant association with their expectations.

To further analyse these relationships I study the difference in expectation of opportunities between LS and UPS students by each transition process and the marginalisation of the State where they live.

7.4.2 Sensitivity analysis of the combined effect of transition processes and marginalisation on the expectation differences between LS and UPS students in public schools

I study students' chances of having higher educational expectations by the level of marginalisation and type of transition process used in the States where they live. I focus on observing the differences between LS students and UPS students in public schools only. To do so I make use of OPM and sensitivity analysis using three regression models (4, 5 and 6). Model 4 is used as a reference for the relationship between students' expectations and explanatory variables. Model 5 is used to generate inferences about how LS students' educational expectations are affected by the combination of transition processes and the level of marginalisation before the transition starts. Finally, Model 6 does as Model 5 for UPS students. The results of these regression models are presented in Table 7.8.

In addition, using sensitivity analysis I compare Models 6 and 5. This allows me to observe the effect of the differences between marginalisation and the process of transition on the educational expectations of students that have and have not completed the transition to UPS. Please note that I do not perform a sensitivity

analysis of UPS expectations in public versus private schools as done in the previous section. This because I am testing the combined effects of both State marginalisation levels and transition process. As mentioned in the methods subsection, when interaction modelling is introduced, the coefficients can be interpreted only as the effects from the effect. Therefore, the comparison between public versus private schools would add an additional dimension to the coefficients to be compared and the interpretations of the differences would be less practical.

Model 4 is used to present a general picture of the relationships studied in this section. Model 4 shows that, when every other factor is constant, MixAC is associated with a decrease in 21 percent of the probability of expecting higher when compared to the MAC transition process. Moreover, SBEE is associated with a 10 percent increase in the probability of expecting higher when compared to MAC. Lastly, the SEE transition process is associated with an 8 percent decrease in the probability of expecting higher when compared to MAC. The relationships presented suggest that when marginalisation is included into the equation, the effect of the transition process changes in MixAC as its negative effect compared to MAC becomes stronger (see Table 7.4 for reference).

Model 4 also shows the results of the association between the educational expectations of students and the level of marginalisation of the State where they live. Students that live in low levels of marginalisation States show a 26 percent increase in their chances of expecting higher compared to their peers that live in States with very high level of marginalisation. Moreover, students that live in very low level of marginalisation States are associated with a 15 percent increase in their chances of expecting higher than students in very highly marginalised States. Furthermore, students that live in medium and high level of marginalisation States are associated with an increase of 17 and 18 percent, respectively, in students' chances of expecting higher compared to peers that live in States with very high level of marginalisation. Overall, the relationships presented suggest that States with the lowest levels of marginalisation have the strongest positive associations with increasing students chances to expect higher compared to very marginalised States. Conversely, the effects of the rest of the marginalisation categories show

that the greater positive effects are found at the most marginalised States when compared to very highly marginalised contexts.

The effects of the interactions between transition process and marginalisation are included in Model 4. These results should be interpreted as the effect of the effect of the relationship between transition process and marginalisation, where the strongest positive effect is found for the relationship between MixAC and very low levels of marginalisation. This suggests that the combination of MixAC with very low levels of marginalisation States positively affects students' chances of expecting higher, compared students in MAC that live in very highly marginalised States. Conversely, the rest of the associations presented show to have negative effects on students' chances to expect higher when compared to MAC students that live in States with very high marginalisation levels.

I further perform tests for equality of the coefficients which sustain that MAC in very high marginalised States has the stronger positive association with promoting higher educational expectations followed by MixAC in very low marginalised States. Those results are contra-intuitive as MAC positively corresponds to States that are the poorest of the poor (Chiapas and Oaxaca). Hence it would have been expected that students living in such contexts would have lower chances of having higher expectations. However, despite the characteristics of where they live it is possible that their experience of the most homogeneous process of transition with no entry examinations could encourage them to be the most positive regarding their academic futures.⁸²

Finally, Model 4 also shows the association results of students' level of education. These results are very similar to Model 0⁸³ as being enrolled at UPS sustains the strongest effect on supporting students' chances to expect higher than their LS peers (85 percent).

⁸² In addition, the result of MixAC suggests that experiencing the most complex procedures and examinations in some extent among students that live in the wealthiest States of MixAC encourages students to expect to achieve higher education credentials. This may be related to the fact that the wealthiest States that use MixAC have other positive education characteristics such as a lack of teachers union conflict, high enrolment rates, and adequate amounts of UPS schools available, therefore the conjunction of factors may be supporting students' expectations.

⁸³ The results show that being enrolled at UPS level compared to LS level is associated with an increase of 81 percent the chances of students to expect higher.

Table 7.8 Regression result of the Ordered Probit Models 4, 5 and 6

Variable	Model 4	Model 5	Model 6
MixAC	-0.214	-0.197	-0.234
	-3.83	-1.88	-3.47
SBEE	0.108	-0.095	0.092
	2.32	-0.97	1.64
SEE	-0.008	-0.072	0.024
	-0.27	-1.44	0.7
High	0.183	0.306	0.054
	4.18	4.45	0.93
Medium	0.176	0.332	0.047
	4.05	4.41	0.87
Very Low	0.159	0.32	0.025
	4.94	6.11	0.59
Low	0.268	0.387	0.165
	5.71	4.99	2.73
MixAC/High	0.08	-0.086	0.161
	1.05	-0.59	1.74
MixAC/Medium	-0.101	-0.259	-0.024
	-1.41	-1.95	-0.28
MixAC/Very Low	0.137	0.086	0.171
	2.15	0.75	2.18
MixAC/Low	(omitted)	(omitted)	(omitted)
SBEE/High	-0.3	-0.125	-0.266
	-4.78	-1.03	-3.43
SBEE/Medium	-0.279	-0.107	-0.252
	-4.49	-0.86	-3.38
SBEE/Very Low	-0.131	0.155	-0.159
	-2.27	1.33	-2.29
SBEE/Low	-0.459	-0.391	-0.422
	-6.21	-2.57	-4.77
SEE/High	-0.166	-0.101	-0.191
	-3.29	-1.21	-2.99
SEE/Medium	-0.109	0.028	-0.182
	-1.9	0.27	-2.64
SEE/Very Low	(omitted)	(omitted)	(omitted)
SEE/Low	(omitted)	(omitted)	(omitted)
UPS level	0.856		
	58.97		
cut1	-0.181	-0.659	-0.939
Constant	-5.48	-17.64	-27.58
cut2	0.881	0.075	-0.165
Constant	26.24	2.03	-4.89
cut3	1.596	0.658	
Constant	47.06	17.64	

Source: Own elaboration based on OPM including sample weights. Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% respectively. Standard errors are reported in the parentheses.

Overall, Model 4 sets a picture that suggest that the process that does not have additional admission criteria and has the simplest procedures, is associated with the highest chances of students having higher educational expectations.

Furthermore, the less marginalised the State where students live, the greater their chances to expect higher. Nevertheless, the interaction effects show that the combination of MAC and very high marginalisation levels has the stronger positive effect on students' expectations opportunities followed by the combination of MixAC and very low marginalisation levels. The results highlight the need for further exploration of how the combination of transition process with States with varying marginalisation levels may affect students' educational expectations.

I perform a sensitivity analysis of the coefficient differences between Models 6 and 5 as well as the differences in their predictions.⁸⁴ Table 7.9 presents the results. In the first column I present the coefficient difference by regression category. Please note that the difference for MAC and very high levels of marginalisation are not included as they are referenced in the regression analyses. Moreover, there is no prediction for the combined effect of MAC with very low levels of marginalisation States, as well as MixAC or SEE with very high levels of marginalisation, as there are no States in these processes that have the level of marginalisation presented. The values presented in this column can be interpreted as the difference in the effect of UPS students having higher educational expectations compared to LS students at each category. In addition, the following columns calculate the difference in the prediction of probabilities of Models 6 versus 5 for each category and combination. Furthermore, in the interpretation of results a positive number suggests that the prediction of expectations is higher for UPS students. The analysis observes which combined effect allowed for greater differences in the expectations of UPS when compared to their LS peers.

⁸⁴ The prediction of probabilities of Models 5 and 6 can be consulted in annex 2

Table 7.9 Sensitivity Analysis: Predicted probabilities differences between LS versus UPS at Public school by Marginalisation

Transition process	Coefficient difference Model 6 versus Model 5	Difference in the prediction of probabilities UPS versus LS at Public school		
		UPS	UG	PG
MAC	n.a	-0.08	0.03	0.24
MixAc	0.02	-0.07	0.06	0.25
SBEE	-0.20	-0.06	0.05	0.23
SEE	-0.06	-0.08	0.03	0.23
Very High	n.a	-0.11	0.04	0.33
High	-0.25	-0.07	0.05	0.24
Medium	-0.29	-0.06	0.06	0.22
Very Low	-0.30	-0.07	0.03	0.21
Low	-0.22	-0.09	0.03	0.26
MAC/Very High	n.a	-0.10	0.05	0.31
MAC/ High	n.a	-0.08	0.02	0.22
MAC/Medium	n.a	-0.08	0.02	0.21
MAC/Low	n.a	-0.07	0.03	0.21
MAC/Very Low	n.a	n.a	n.a	n.a
MixAC/Very High	n.a	n.a	n.a	n.a
MixAC/ High	0.25	-0.09	0.05	0.30
MixAC/Medium	0.24	-0.05	0.08	0.26
MixAC/Low	0.09	-0.07	0.04	0.22
MixAC/Very Low	n.a	-0.06	0.04	0.22
SBEE/Very High	n.a	-0.13	0.04	0.38
SBEE/ High	-0.14	-0.06	0.06	0.23
SBEE/Medium	-0.15	-0.06	0.05	0.22
SBEE/Low	-0.31	-0.05	0.04	0.16
SBEE/Very Low	-0.03	-0.06	0.07	0.15
SEE/Very High	n.a	n.a	n.a	n.a
SEE/ High	-0.09	-0.06	0.05	0.12
SEE/Medium	-0.21	-0.04	0.05	0.17
SEE/Low	n.a	-0.09	0.03	0.24
SEE/Very Low	n.a	-0.11	0.00	0.27

Source: Own calculations with PISA09

The coefficient differences for the transition process categories in the first level of Table 7.9 show that SBEE and SEE have a negative coefficient difference, when UPS and LS level are compared having MAC students as reference. This means that the effect of these transition processes could be stronger at LS level than at UPS , having MAC as reference. On the contrary in MixAC the effect of UPS students remains strongest at UPS when compared to LS having MAC students as reference. Regarding marginalisation it is observed that the effects are in all categories

stronger at LS level than at UPS level, having very high marginalisation as reference. Only in MixAC the combined effect with marginalisation is strongest at LS level than at UPS level, however the differences are greater the more marginalised the context.

If we observe the expectation probabilities' predications, it highlights that expectations for UG and PG are higher in all cases among UPS students than LS students. Conversely, the expectation probabilities for UPS level are higher among LS students than UPS students at all transition processes, marginalisation levels, and combinations of both. Also, is relevant to note that the effects remain very similar by transition processes and level of marginalisation. However a few points are outstanding:

- (i) The differences in the expectation probabilities between LS and UPS to expect to reach PG are not only the greatest but also the ones that show the largest variations by transition process and marginalisation level.
- (ii) The differences between LS and UPS students' chances to expect to reach PG at very highly marginalised States are the greatest. The results suggest that students that complete the transition at very marginalised States may have 31 percent more chance in MAC, and 38 percent more chance in SBEE, to expect to reach PG than their LS students peers.
- (iii) The expectation to reach PG among students that do not live in the very highly marginalised States appear to show greater differences (between LS and UPS students) the more marginalised the State where they live. The only exception is SEE, where the least marginalised States show the greatest differences in the transition process.

Overall the results of this section suggest that the level of marginalisation of the State where students live could affect students' chances to expect higher. As expected, it appears that the better the State level of marginalisation the better students chances to expect higher; which is congruent with previous results (Weiss et al., 2005). However when the combined effect of transition process and marginalisation is observed, some contra-intuitive outcomes are found. These results are more relevant when we observe the expectations to reach PG. In most

contexts, the more marginalised the State where students live the greater the expectation differences between LS and UPS students. The exception is SEE, where it appears that the less marginalised the State the greater the difference. This result suggests that having completed the transition through an extensive process of examinations and homogeneous procedures increases to a greater degree the difference in the expectation to reach PG among UPS students in wealthier contexts. It can be inferred that the extensive use of examinations could reinforce the expectations of students in wealthy contexts while that effect is less evident in poorer contexts.

In the following subsection I summarise the most important result of the chapter and provide further conclusions.

7.5 Final remarks

This chapter studied the education expectations of public school pupils in Mexico under the different transition processes. The main research question that guided the analysis is how 15 year-old students' educational expectations differ by transition process used where they live. To perform the analysis I focused on analysing the differences between LS and UPS students' expectations by transition process used and enhanced the study by including an analysis of the combined effect of the marginalisation of the State where students live and the transition process they experienced with their educational expectations.

The chapter had as foundation the assumption that the differences between transition processes in Mexico have a relationship with the education expectations of students by means of their procedures and extensiveness of entry examinations. I suggested that the transition processes' relationship would be different for LS and UPS students. In that sense I suggested that the more extensive the use of entry examinations the stronger the positive effect on UPS students' expectations, as UPS students' confidence could get reinforced by succeeding in competitive selection processes. Conversely, I expected the education expectations of LS students to behave in the opposite way as in processes with extensive examinations, where students may be unsure about their chances of succeeding. As a consequence, I expected to observe in the processes greater expectation differences between LS

and UPS students in reference to processes with the more extensive use of examinations.

Regarding the procedures, I assumed that UPS students may show higher expectations the more heterogeneous the procedures they experienced in the transition. This is because they may benefit from a reinforced confidence in their capabilities of succeeding. I also expected that LS students facing the difficulties of heterogeneous transition processes would have lower expectations than their peers that experience homogeneous processes. Therefore, when comparing LS and UPS students' expectations I expected the gap to be greater at heterogeneous processes.

The two assumptions could appear contradictory because the transition processes that have heterogeneous procedures also use entry examinations to some degree. However, as in the previous chapter, the results obtained suggest that the relationship that the use of entry examinations may have with students' educational expectations could be mediated by the heterogeneity of the procedures.

Looking at the findings of LS students it appears that the transition processes with homogeneous procedures have the strongest effects on LS students' education expectations compared to the rest. Not only is the representation of students that expect to reach the highest education credentials (UG and PG) greater in MAC and SEE, but the opportunities of LS students to have higher educational credentials appears the greatest at SEE followed by MAC (while smaller at SBEE followed by MixAC). The results suggest that homogeneous processes would have stronger positive effects on LS students' expectations than contexts with heterogeneous procedures. However, the findings contradict the assumption that the more extensive the use of examinations the lower the expectations, as students experiencing the most extensive examination processes in SEE appear to be the ones with greater chances of expecting to reach higher education credentials. It can be suggested that SEE, despite having the most extensive use of examinations, is the process that may provides more clarity and certainty to LS students. Conversely, in MAC processes students may need to apply to more than one school to secure a place. Therefore despite the lack of examinations and homogeneous

procedures, MAC takes the second place in promoting high educational expectations in LS.

Furthermore, the assumption about the effect of heterogeneous procedures is supported by the results observed in SBEE and MixAC processes. LS students in MixAC appear to have the smallest chances of expecting higher followed by students in SBEE. LS students in MixAC would face the most heterogeneous set of procedures, while LS students in SBEE would at least know that certain school modalities request examinations. Consequently, students in SBEE may feel more confident about the process of transition than students at MixAC and ergo could have greater chances to have higher educational expectations.

The results of UPS students' expectations are as follows. Students that have completed the transition through MAC proportionally showed higher education expectations. In addition, UPS students in MAC, who were not required to sit entry examinations and experienced homogeneous procedures, appeared to have the highest chances of expecting higher education credentials. However SEE (which also uses entry examinations) showed the second greatest effect in promoting higher education expectations amongst UPS students. Conversely, the results of the other processes, MixAC and SBEE, suggest that heterogeneity may promote smaller chances of UPS students expecting higher.

It is relevant to clarify that despite UPS students' expectations being considerably higher than LS students, when comparing the expectation patterns of LS and UPS students' expectations under the different transition process we observe very similar trends. The expectations of students in MAC and SEE are higher than amongst students in SBEE and MixAC. This raises the question about whether the expectations of students have a particular trend that may not relate to the existence of the transition processes experienced; however, few findings are worth highlighting.

First, SBEE transition processes that makes use of entry examinations and have heterogeneous procedures, do not only appear to show the most similar representation of LS and UPS students according to their educational expectations, but also their chances of expecting higher appear very similar even when

observing private schools. Therefore the expectations of 15 year-olds in the States that use SBEE appear to be the lowest in Mexico regardless of the transition process experienced or the funding of the school that the attend to.

Second, MixAC transition processes, which also use examinations and have the most heterogeneous procedures, appear to have the largest expectation differences between LS and UPS students. In addition MixAC shows the greatest gap between UPS and LS students predicted expectations probabilities. The result suggests that the heterogeneity of the procedures could make a difference on students expectations by making them more likely to expect to reach the highest education qualifications; particularly because their expectations appear to remain far different from students in private schools.

Third, MAC process, which makes no use of entry examinations, shows a very similar expectation gap between LS and UPS students to the one observed at MixAC, despite students' expectations in MAC appearing higher. It is also important to highlight that the expectations of UPS students in MAC that attend public schools were found to be different from students in private schools. The improvement in the chances to expect higher in MAC could be attributed to the particular characteristics of the transition process that these students experience.

Finally, in SEE, the process with the most extensive examination use, no important gap was found in the expectations of UPS versus LS students, nor between UPS in public schools versus public schools. Is important to keep in mind that the expectations in SEE were found to be high, so is likely that 15 year-olds in the States that use SEE have high educational expectations regardless of their education level or the funding of the school they attend. The results suggest that this may be related to particular characteristics of the States. SEE is used by the State with the lowest levels of marginalisation in Mexico, the Federal District. The results suggest that in SEE the lower the marginalisation, the greater the expectations gap differences between LS and UPS students. Therefore only the use of examinations in wealthy contexts could translate into a gain in the education expectations of students after the transition.

Chapter 8. Conclusions

This thesis explored the transition process to upper secondary (UPS) level education in Mexico. Special focus was given to investigating whether there are different patterns of 15 year-olds' selection and educational expectations, according to the different transition processes that exist in Mexico. Three main research questions guided the analysis:

1. What are the underlying factors that affect the different transition processes to upper secondary used in the different States in Mexico?
2. What are the characteristics of 15 year-olds selected at upper secondary and how do they differ in States that use different transition processes?
3. How do 15 year-old students' educational expectations differ by the transition process used where they live?

To respond the questions I used a predominately quantitative research design. I performed a political economy analysis to identify factors that could relate to the heterogeneity on which the transition process to upper secondary works in Mexico and developed a characterisation of its differences. The results of the analysis informed the study of the relationship that the different processes of transition could have on 15 year-old students' selection and educational expectations. That study focused on exploring the distributional changes in the socioeconomic background, reading achievement and educational expectations of upper secondary students (in grade 10) compared to lower secondary students of the same age who are in grade 9.

It is relevant to highlight that due to the limitations of the data used in the analysis I cannot claim that my findings show causal relationships. Instead I acknowledge the limitations and use the analysis to explore the particularities of the transition processes in Mexico and their likely relationships with students' selection and education expectations.

This chapter provides the conclusions of the research performed. I present the most important findings and discuss them in light of the literature reviewed.

Finally, I problematise the interpretation of the findings, discuss their limitations and its implications for further research.

8.1 The transition to upper secondary in Mexico

I explored the process of transition to upper secondary school in Mexico. The investigation used a political economy analysis of how the transition works across States and took a historical approach. I studied the history of decentralisation and how each State created its own education system. This provided insights about how States' context relates to the characteristics of the education institutions created, the characteristics of the upper secondary level, the actors involved in the transition, the routines in which they interact and the kind of power relationships they developed. The results of the investigation suggest that the transition to upper secondary in Mexico could be seen as a reflection of the political and economical differences between States and the result of the history of how these differences have developed, sustained or transformed over time.

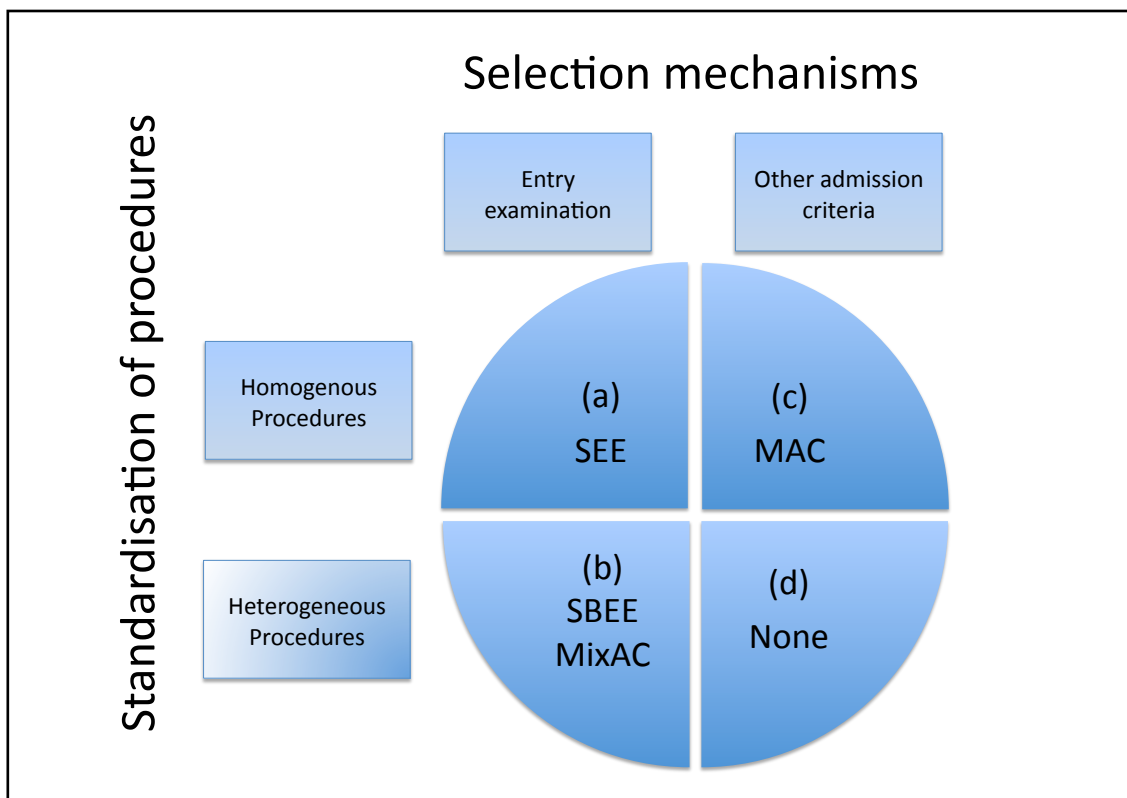
With the aim of understanding the transition to upper secondary level in Mexico, I reviewed literature on the transition processes used around the world in Chapter 1. I observed that one characteristic that differentiates transition systems is the mechanism of selection; in other words, whether they use entry examinations or not.⁸⁵ Another characteristic identified in the literature is how homogeneous the processes are within the education system. In a homogeneous transition system, schools would use the same process, mechanisms of selection and procedures; while in heterogeneous systems those would vary (Bakker and Wolf, 2001). The review of the international literature on the matter suggested that the use of transition processes is neither homogeneous by region nor within countries. Research suggested that transition systems for post-compulsory level education tend to be more heterogeneous for reasons including the differentiated demand and public funds available (Caillods 2007), how centralised the education system is (Cabrero 1997) and the type of education tracks available at post-compulsory education (Lee 2013).

⁸⁵ Open admission systems, banding systems, intra-district admission and lottery systems.

In my exercise to characterise the transition process to upper secondary in Mexico, I included the mechanism of selection and the standardisation of procedures as main criterion. The results of my enquiry suggested that the transition to upper secondary in Mexico is heterogeneous because the mechanisms of selection and procedures vary by State. However, the variations also considered whether States use entry examinations and if so to what extent (see Figure 8.1). Additionally, I reviewed the procedures for the transition to upper secondary and identified how standardised or non-standardised they are at State level.

Consequently, my proposed characterisation of the transition processes classified the transition to upper secondary by how standardised the procedures, the use of examinations and the mechanisms of selection are within each State. Four categories of transition processes were found. In Figure 8.1 the categorisation is presented in relation to the framework of Bakker and Wolf (2001) on transition systems. The first quadrant (a) displays the transition process to upper secondary in States that use examinations with homogeneous procedures (SEE). Quadrant (b) shows States that make use of examinations and where the procedures are neither homogeneous nor standardised (MixAC and SBEE). One main difference between these two processes is the extensiveness of examinations. In SBEE, entry examinations are used by certain school modalities; while in MixAC certain schools opt to use entry examinations. As a result the use of examinations is the most extensive at SEE, followed by SBEE and lastly at MixAC. Furthermore, quadrant (c) shows States that do not make use of entry examinations to any extent and where the procedures are homogeneous at every school (MAC). Finally quadrant (d) does not have representation in Mexico because there are no States that use admission criteria other than examinations with heterogeneous procedures.

Figure 8.1 Characterisation of the transition to upper secondary in Mexico based on the framework of transition system



Source: Own elaboration based on the characterisation of Bakker and Wolf, 2001 and the analysis of the transition to upper secondary in Mexico performed in Chapter 5.

It is relevant to point out that the transition to upper secondary in Mexico is believed to be heterogeneous not only because of the diversity of mechanisms and procedures used in the selection of students by different States. The heterogeneity of the processes relate in a deeper way to historical political and economic factors. First, the transition to upper secondary is heterogeneous because Mexico is a federalised country. Hence, differences between State education systems are not only important but affect the education opportunities they provide (as mentioned in Chapter 4). Furthermore the federal and State government have different perspectives on the rationalisation of the educational provision (based on the concepts of Eggleston, 1984 and Bernstein, 1971) and the reproduction of the social structure and social mobility (based on the concepts of Bourdieu and Passeron, 1979, Bourdieu, 1979). Moreover, the way the education systems have evolved at State level has translated into different visions on how efficient or effective the selection at upper secondary should be (based on the concepts of

Harman, 1994; Ramsay, 1984, Anderson and Vervoorn, 1985, Gipps and Murphy, 1994).

The political economy analysis of the transition also identified that the transition to upper secondary is heterogeneous because of the lack of formal regulation. This has opened up spaces for different actors to have different levels of influence in the transition processes. In that sense, different education structures at State level allow for the coexistence of different power relations between the actors involved in the transition. Lastly, it is because of the combination of all those reasons, that some actors (i.e. the external examination institutions CENEVAL and EXHCOBA, Teacher unions, and the media) have different levels of involvement, influence and control over the processes. Consequently not only is the transition heterogeneous because there are differences in the extensiveness of examinations, but it also varies in terms of which actor has the most control of the transition at State level.

The political economy analysis of the transition process suggested three main results. First, States with more structured education systems tend to have homogeneous transition processes, while in States with less structured education systems, schools and entry examination institutions tend to have stronger influence on the transition process. Ergo the procedures are not homogeneous or standardised. However, other factors as well seem to affect the heterogeneity of the procedures such as the States' level of development and States' enrolment accomplishments at lower secondary and upper secondary levels. The combination of these characteristics relates, not only with the examination extensiveness or the procedures of selection, but also to students' accessibility of transition information and the actual cost of the transition.

Second, regarding accessibility of information, the findings suggest that processes that have homogeneous procedures seem to offer more information and are more open about the procedures. Nevertheless that relationship is mediated by the level of development in the State, as the more marginalised the State the less transparent the process and procedures in the transition to upper secondary are likely to be. Third, regarding the cost of the transition process, heterogeneous procedures could be more expensive. This is believed to relate to the fact that more actors are involved in the transition. In these processes students may need to pay

different costs. For example when applying at several schools students would pay an entry examination fee at each, while in homogeneous processes they would pay one fee only. The cost is also mediated by the characteristics of the States, as fees tend to be higher at States with lower levels of marginalisation.

The literature on transitions has pointed out that the accessibility of information and costs of the transition may define students' chances to complete successful transitions (Bakker and Wolf 2001; West 2005; West et al. 1998; West et al. 2008). Therefore, the heterogeneous transition system in Mexico provides a unique case study, where the most important differences in the procedures of transition to post-compulsory education can be found. Therefore differences in the opportunities of selection States provide, as well as the effects on students' educational expectations, were expected to be relevant.

8.2 The selection of upper secondary students under different processes of transition

The main objective of the study of the selection under the different transition processes used in Mexico was to investigate whether the socioeconomic and achievement composition of 15 year-old students is different by transition processes. For that, I focused on observing and studying the distributional changes between lower secondary and upper secondary students under different transition processes.

Previous research has pointed out that transition policies have a central role in defining whether selection will be performed on academic attainment or will perpetuate selection based on family background (Schiller and Muller 2000). My findings showed that the differences in the transition processes could affect students' selection at upper secondary. As expected, 15 year-old upper secondary students appear to have better socioeconomic and cultural backgrounds as well as higher reading achievement, than 15 year-olds in lower secondary. A simplistic explanation could be that students, who make successful transitions to post-compulsory education, need to have higher socioeconomic and cultural capital and therefore show higher achievement to be successful (Binder and Woodruff 2002). However, this thesis provides evidence that the transition to upper secondary may

not only be matter of social selection, but an intertwined result of the mechanisms and procedures used for the selection and the level of marginalisation of the State where the transition is performed.

The results showed that upper secondary students need certain socioeconomic and cultural capital to make a successful transition; however the capital required appeared to be higher at the processes that use entry examinations. Interestingly, in processes with heterogeneous procedures, students seem to require higher socioeconomic and cultural capital to be selected at upper secondary. Nevertheless, in the processes that have no additional admission criteria, as well as homogeneous procedures, wealthy students also show an advantage over poor students. These results showed that the representation of wealthy students appears to increase at upper secondary level regardless of the processes used in their selection. Hence, the transition to upper secondary level in Mexico continues to be influenced by the natural process of social selection present in all educational transitions (Reyes et al. 2000; Sirsch 2003; Van der Velden and Wolbers 2006). However the use of entry examinations may become a stronger filter when students face heterogeneous procedures. Consequently my results suggest that heterogeneous procedures could be less effective in providing 15 year-olds with equal access opportunities to upper secondary.

Regarding the efficiency of the selection, the results showed that the transition processes with the most extensive use of entry examinations and homogeneous procedures could perform more efficient selections. Conversely, the processes that make use of entry examinations to some extent but have heterogeneous procedures, may be less efficient. Moreover, as expected, the processes that have no additional admission criteria appeared to provide a “filterless” transition, as it allows the most similar representation of upper secondary students’ reading achievement compared to 15 year-olds in grade 9. Consequently, it is believed that the efficiency of the selection could be mediated by the heterogeneity of procedures as the findings suggest that the use of entry examinations may support an efficient selection when the procedures are homogeneous.

Another interesting finding of the study is that the middle class showed a very similar socioeconomic and achievement background compositions when 15 year-

olds in grades 9 and 10 are compared at all transition processes. This supported previous studies, which state that middle class students are likely to complete transitions to post-compulsory education regardless of the type of selection performed (Nichols et al. 2010). This is because middle class students not only have the social capital to support educational transitions but also show a stronger belief that education progression is the key for social mobility (Doo Hwan and Schneider 2005). Therefore, the processes of transition appear make more of a difference in the representation of students that come from the poorest backgrounds and/or that have the lowest levels of achievement, as previous research has suggested (Milesi 2010; Tieben et al. 2010; Tuominen-Soini et al. 2012; Van der Velden and Wolbers 2006; Vlaardingerbroek and El-Masri 2008).

Additionally, my findings suggested that the level of marginalisation in the States where students live could mediate how the different transition processes achieve effectiveness and efficiency. The results showed that the more marginalised the State, the less effective and efficient the selection could be even in States that have no additional admission criteria. However, the findings also showed that socioeconomic and cultural background differences between lower secondary and upper secondary students may be greater in poorer States that have heterogeneous procedures. In that sense social selection may continue to be an important filter in the transition to upper secondary at the most marginalised contexts, regardless of the process used in the selection. Nevertheless heterogeneity of procedures could allow for greater selectivity when used in the transition to upper secondary.

Conversely, States with middle level of marginalisation show smaller differences in the socioeconomic and cultural background and ability between lower secondary and upper secondary students. In other words, middle level marginalisation States appear to promote transitions where the representation of 15 year-old students could be less filtered by the procedures of selection. Furthermore, at rich States the differences between students in grade 9 and 10 appeared important, particularly at the process that makes the most extensive use of examinations. It is inferred that the transition at rich States is more competitive because the upper secondary demand is larger and students tend to have better achievement as a result of better schooling. Therefore the selection at rich States can be the most effective when

using entry examination because the general conditions of the students allow for better selection based on achievement.

Overall, the results can be summarised as follows. First, the transition processes in Mexico may influence how effective the selection is at upper secondary level, with homogeneous processes being the ones that may promote a more balanced intake of students according to their social background. Second, the selection appears to be more efficient and effective at the processes that have the most extensive use of examination with homogeneous procedures. Hence a very competitive selection process does not negatively affect the representation of students from the worst socioeconomic backgrounds but seems to select students with better level of ability. Thus this process design appears to be an adequate mechanism of selection. Lastly, even though homogeneous procedures seem to promote a more efficient selection at upper secondary, the effect of social background and the marginalisation of where students live appears to still define to a large degree the opportunities for poor students to make it to upper secondary, regardless the process of transition to upper secondary used where students live.

8.3 The educational expectations of upper secondary students under different processes of transition

I investigated whether there are differences in the expectations of 15 year-old students by transition processes. For that I focused on observing and studying the expectation differences between 15 year-old lower secondary and upper secondary students (in grades 9 and 10, respectively) under different transition processes.

The educational expectations of 15 year-olds in Mexico were found to be very high, as over 60 percent of students expected to study up to postgraduate level. However, the expectations of students in grade 10 (who have completed the transition to upper secondary) were considerably higher than amongst students in grade 9, regardless of the process of transition used where they live and their own socioeconomic background. The findings showed that lower secondary students' expectations appeared slightly more positive in homogeneous transition processes, than in processes that have heterogeneous procedures. Homogeneous processes

showed the greatest representation of lower secondary students that expect to reach high education credentials (undergraduate and postgraduate) while their chances to expect higher credentials also appeared greater. It is important to point out that amongst homogeneous transition processes there were not found to be important differences in the expectations of students facing minimum admission criteria and those facing entry examinations. Consequently, the use of examinations may not promote lower expectations on students facing the transition, however, the presence of heterogeneous procedures could discourage students to have the highest educational expectations.

Additionally, the results of 15 year-old students in grade 10 showed a very similar pattern to students in grade 9. The findings suggested that having homogeneous procedures could promote higher educational expectations for students compared to heterogeneous procedures. Nevertheless, students that have completed the transition through the process with no additional admission criteria proportionally appeared to have greater representation of students that expect to reach a postgraduate degree, as well as the greatest chances of expecting higher. This pattern was followed by students at the processes with the most extensive use of examinations (with the second strongest positive effect). Thus the expectations of students who completed the transition at processes with entry examinations and/or heterogeneous procedures, may not get reinforced by the accomplishment of completing the transition in selective systems.

The findings also showed that the use of homogeneous procedures in the transition to upper secondary could be considered to be a positive mechanism for selection as both lower secondary and upper secondary students appeared to maintain high educational expectations. Hence the use of entry examinations on its own may not negatively affect students' chances to expect higher. However, the similarities in the patterns of lower secondary and upper secondary students' expectations raised the question of whether the expectations have a particular trend according to where students live, that may not relate with the transition on its own but to characteristics that could not be measured in this study.

I studied in addition the expectations gaps between lower secondary and upper secondary by transition processes. I found some illuminating points. First, the

processes with heterogeneous procedures appeared to have both the smallest and greatest educational expectation gaps. Amongst them, the process with the most extensive use of examinations (SBEE) showed the smallest expectations gap, while the ones with the least extensive use of examinations (MixAC) showed the greatest. Interestingly, the educational expectations of 15 year-old students in the former process appeared to be the lowest in Mexico. That was shown by observing students by level of marginalisation in the State where they live, as well in relation to students that attend private as opposed to public schools. Therefore, as expectations in SBEE appeared to be particularly low, the process of transition cannot be considered to make a difference to what students expect. Conversely, the other heterogeneous transition process with the least extensive use of examinations showed the greatest gap. In that process lower secondary students' expectations appeared to be the lowest in Mexico. However, after the transition the expectations seemed to have had the greatest improvement. Thus, the heterogeneity of the procedures, in addition to the use of entry examinations in the least extensive way, could reinforce the expectations of those that complete a successful transition to upper secondary. That is because the effect of the heterogeneous procedures may be minimised when schools with no entry examinations are found in the States where students live.

Second, amongst homogeneous transition processes the gap was smaller for students in the processes with no admission criteria than in the process with the most extensive use of examinations. The results suggest that despite students having high educational expectations in these processes, the process that uses examinations in the most extensive way could have made more of a difference in promoting higher educational expectations in the students that successfully complete the transition. As a result of a reinforced belief in their capabilities, students that completed a successful transition in the process with homogenous procedures and examinations construct higher expectations.

Lastly, I studied the expectations gaps between lower secondary and upper secondary by transition processes and marginalisation levels in the States where students live. The findings suggest that the gaps in all processes are greater at States with very low level of marginalisation compared to the rest. It was

hypothesised that as the selection tends to be more competitive in States with higher level of development, the expectations of students that complete the transition could get reinforced in a stronger way and therefore the differences between their lower secondary counterparts become greater. However no relevant differences by transition process could be found.

8.4 Limitations and implications for further research

It is important to highlight that despite the observed differences in the socio-economic, achievement and expectation composition of students in grade 9 and 10 by transition processes being in almost all cases statistically significant, they were not of great magnitude. Nevertheless as the procedures and mechanisms of selection employed by each transition process are important, it is likely that this study could not capture and measure all the context characteristics that relate to students' selection and educational expectations. Perhaps the most important limitation of this research is that it is not performed with longitudinal data. It is acknowledged that for my study the use of longitudinal data would have been ideal. By tracking students during their transition to upper secondary level I would have not only observed the students selected at upper secondary but also those who were not. As a consequence, stronger inferences could have been made about the differential effects of the transition processes on students' selection and their expectations. However, for Mexico that kind of data does not exist.

I therefore had to choose the data that better fitted the objectives of the study. I tried Excale⁸⁶ data sets (2008 and 2011). This data could not be used because despite collecting relevant context information on 3rd grade lower secondary and 3rd grade upper secondary students, new sampling is performed for every collection. Therefore, the upper secondary students in the 2011 collection may not be the same as those lower secondary students in the 2008. Upper secondary students are also almost completing the education level, which may have had important implications in the kind of inferences that could be made. Moreover, I tried to obtain data from the two main entry examination institutions in Mexico who also collect applicants' context information. That data would have allowed me

⁸⁶ Exámenes para la Calidad y el Logro Educativos (EXCALE) from the National Institute for the Evaluation of Education (INEE).

to observe the characteristics of both the students selected and rejected at upper secondary. However, in spite of my prolonged effort in justifying my study and repeatedly highlighting that I did not require personal data of any kind, I was refused the information on the grounds of violation of privacy rights. In any event, that data would have only allowed me to observe students at the processes that make use of entry examinations. Consequently, I would have not been able to perform a complete investigation of the transition processes differences in Mexico. Therefore, I decided to use PISA, which provided me with the option of observing lower secondary students that may be experiencing the transition and upper secondary students that have completed it in a relatively short time. Furthermore, PISA has a representative sample for every State in Mexico and the data is publicly available which allowed me to study the transition processes' effect at every State.

It is important to mention that the use of PISA has implications in the kind of analysis that could be performed. First, because PISA's sampling is focused on 15 year-olds, the data did not have a balanced representation of lower secondary and upper secondary students. I acknowledged that characteristic in the analysis and performed the most appropriate tests to analyse the differences between lower secondary and upper secondary students. Moreover, in all the analysis, I used the sample weights to minimise the errors that could result from different population sizes. However, the different sample sizes affect the accuracy of the comparisons performed.

Secondly, as PISA was not designed to study selection, I did not have all the relevant information to observe students who were and were not selected, as well as students that did not decide to continue studying upper secondary. Hence, the most I could do was to study distributional changes and use these results to generate possible hypotheses about the observed patterns. Therefore, this is a thesis which aim is to generate hypothesis, not to test potential relationships.

Lastly, I started this study with the assumption that students' expectations would be affected by the admission and selection mechanisms used in their transition to upper secondary. Nevertheless, as PISA's context questionnaire is not designed for the object of study, the validity of students' responses on educational expectations and their relationship with the processes of transition can be questioned.

Methodology literature has pointed out repeatedly that the way a questionnaire is designed and how the questions are phrased affect the kind of responses that can be obtained (Bryman 2001; Bryman 2006; Bryman and Bell 2007; Creswell 2003; Creswell and Plano Clark 2007). With this regard, PISA's context questionnaire was designed focusing on identifying, not only students' socioeconomic context, but also education practices for attainment and educational engagement. I believe that the questionnaire's implicit objectives and themes are embedded in how the questions are phrased and the logic it has. That characteristic may have led the way students answered the questions and as a result the responses are likely to be more positive towards educational expectations.

I also believe that the study of educational expectations in the Mexican context has an important characteristic that should not be undermined. This characteristic relates to what Octavio Paz (1981) defined as the "Mexican mask" in his book on the sociology of the Mexican (Paz 1981). Paz suggested that Mexicans tend to be over-positive to protect their dignity. In that sense they intimately maintain their worries and troubles with a positive attitude to the future. Paz highlights in the chapter "Mexican masks" that the Mexican is not unaware of his poverty, he only does not desire to make it public and hides it in the dream that something better is about to come (Paz and Santi 1993). I believe this characteristic has important implications on the study of educational expectations amongst Mexican students as it is unlikely they will have negative responses regarding educational expectations, despite being aware that they may be unrealistic. This makes the expectations reported problematic because the reliability can be questioned. This assumption for the Mexican context contradicts Beal and Crockett (2010) study, which suggests that progressively adolescents' expectations are becoming more realistic (Beal and Crockett 2010). Furthermore, as the validity of the expectations can be questioned, the robustness of the inferences made on the transition processes effects on students' expectations can also be questioned.

It is believed that some of the limitations stated could have been reduced by performing a qualitative study where students could be followed through their transition. That study may have allowed me to observe the characteristics of those that are able to progress and those who are not. Also, it may have allowed students

to reflect on the transition process and their perceived chances to succeed, as well as, to think of their educational expectations based on those reflections. It is relevant to mention also that I ruled out performing this kind of qualitative study because of my previous experience doing fieldwork for my Masters' thesis. During that research I experienced serious security issues, which I had to consider. As that kind of study would have involved higher costs I opted to perform this research in the way I did.

Notwithstanding its limitations, this research provides good insights into the relationships between the different processes of transition and students' selection and expectations. Research on the effects of transition processes on students' selection and perceptions about their future is scarce. The findings of this research highlight that the characteristics of the transition processes could have implications for students' chances to progress and expect higher education credentials.

Particularly, this study have highlighted that there is relationship between achievement and social background of students that make it to upper secondary which is entangled. I pointed out that the processes of transition could affect the representation of students that come from the poorest backgrounds. As a consequence, any type of mechanism of selection has to deal with the intertwined relationship between achievement and social background, which would affect the type of selection performed and students' probabilities to progress.

The findings had suggested some guidelines on the effects that the different transition processes could have on the selection of students that come from different social background and have different achievement as well as an effect on the kind of educational expectations they would have. However it is accepted that there are still gaps in the literatures that this thesis could not fulfil. First, it is still needed a better understanding of the particularities of the transition to upper secondary by State level in Mexico. Particularly, why States that have different level of development and education outcomes use the same transition process. Second, what are the characteristics of students that do not get selected at UPS and consequently which transition processes promote more inequality in students chances to complete a successful transition to upper secondary. Third, how

different are EXANI I, EXHCOBA, and PIENSE entry examinations and which one provides a more meaningful and relevant mean of selection to upper secondary in Mexico. Fourth, what do students think about the different transition processes and what effect does they realistically have on their expectations for the future. Last, but not least, further research is needed to observe whether the transition processes' effects are different in other contexts; as perhaps comparative research would be necessary to support more comprehensive design of transition policies to upper secondary.

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Appendix Chapter 4

The analyses performed in Chapter 4 use Formatos 911 data sets 2004-2011. The Formatos 911 are education statistical information collected by SEP. The collection contains information on every level of the education system: kinder garden, primary, secondary and higher education. The Formatos 911 is fed by a questionnaire that each school has to answer at the beginning and at the end of the academic year. The questionnaire requests information from many different areas: schools source of funding; number of students; gender, grade and other demographic information; date of admission, graduation and failure; number and characteristics of the school staff; infrastructure characteristics; as well as educational orientation, school modality and programmes used.⁸⁷

The Formatos 911 data are used to calculate the most relevant education system indicators such as enrolment rate, failure, survival, drop out, intake rates and many more. The Formatos 911 data used for the research are mainly from the 2008-2009, 2009-2010, 2010-2011 academic years. Particularly the 2009-2010 academic year is used more extensively as it enables to make comparisons with the other data sets used. Additionally, some older historical data was included to calculate trends and longitudinal indicators such as progression probabilities, completion rates. As Formatos 911 does not contain any information on students' outcomes it is only used for descriptive analysis.

The results shown in Graph 4.2 are a result of calculations with formatos 911. The results have to be analysed in light of the States' characteristics. For example,

⁸⁷ Formatos 911 collect information on which educational orientation the school has: indigenous, or general curriculum. Additionally which school modality which includes whether the school is technical, communitarian, for workers, etc. Finally, they also collect information on whether the school participates in any government programme such as Escuelas the Calidad (quality schools), Escuela Segura (safe school) and so on, as well as how many teacher belong to the programme Carrera Magisterial. Formatos 911 is the result of the evolution of the education system effort to concentrate in one source all relevant education data. Up to 1975 three institutions collected education information in an independent way: the Directorate General of Educational Planning (DGPE, dependent of SEP), the Department of Statistics (dependent of INEGI) and the National Association of Universities and Institutions of Higher Education (ANUIES). The lack of coordination between those entities generated redundant work and inconsistency in the information reported. To solve the problem SEP and ANUIES convened in 1975 to design a single questionnaire to collect education information in a more unified way and called it Formatos Estadísticos 911 (statistical questionnaires 911); more commonly known as Formatos 911. At first the questionnaire was a printed document that schools had to fill up manually. For that reason the information took long to consolidate and it was barely used for planning or research purposes. It was up to 1995 when at the 5th National Meeting of Statistical Information was agreed to concentrate the information in an electronic way as well as printed version (Rios, 2000). Up to date the schools still get a printed version of the questionnaires which the can fill and send back to SEP, but they have also the option to use an electronic version and update the information online. Those improvements have resulted in a wider use of the statistical information and currently Formatos 911 are the main and official source of education statistical information in Mexico.

although Oaxaca, Guerrero and Chiapas, States with the highest levels of marginalization, have the infrastructure capacity to potentially enrol 90 percent of the relevant age group at LS, their students face the lowest chances of progressing to LS at the appropriate age. Students in those States that do not progress at correct age have on average 28 percent more probability of not continuing to LS after completing primary (Own calculations based on formatos 911 SEP 2004-2011).

The probability to continue studying LS at the appropriate age might be related with political conflict in the States. In the case of Oaxaca, Teachers Union strikes have been responsible for temporary closure of schools at basic education level. The conflict has been intermittent over the past 6 years, but the worst period was in 2007 when schools were closed for a whole academic year. Guerrero's schools have also suffered from teachers strikes although less intensively. The relationship between States' issues and students transition and progression remain obscure but research has shown that fragile States have more students at risk of education exclusion. Research has also shown that drop out in the early grades are linked with push-outs at the transition to secondary school, this means that drop out have different precursors which include repetition, low achievement, previous temporary withdrawals, low attendance, late enrolment and child labour (Lewin, 2007). These characteristics are more evident in States with high marginalization which have greater concentration of indigenous and excluded population and that therefore their students are at higher risk of not continue studying LS and at higher risk of drop out once they are at LS level.

Students' chances to complete LS

Studies have pointed out that attendance, repetition, drop outs and completion⁸⁸ are variables that have to be considered to analyse transition into UPS level. Attendance is an important factor in increasing the chances of a student to complete LS. When a student goes to school regularly, the odds of falling behind,

⁸⁸ It is important to State that even ideally the drop out rate plus the completion rate should show the 100 percent of the population in an academic year; the drop out rate is calculated⁸⁸ as the difference between the students in the previous academic year (2009/2010) and the number of students starting 2010/2011 academic year. In that sense the drop out rate does not say anything about the students that drop out in the middle of the reference academic year. For that reason the calculations presented in drop out rates and completion rates for the 2010/2011 academic year do not add 100 percent.

failure and repetition decrease (Instituto Nacional para la Evaluación de la Educación 2009d); which may reduce the chances of future drop out. In Mexico there is no official data available on students attendance rate but we can use information of the EXCALE09 2005 on the amount of time during the term (two months) that students did not go to school as a proxy. It is reported that 50 percent of the students said that they attended school every day, 40 percent reported that they did not go to school one to three days, 7 percent did not go for a week, 2 percent from eight to fifteen days and 1 percent sixteen days or more. It is important to highlight that from those students that reported that they had been absent for a week or more, 22 percent reported to have repeated 1 or two years in LS (relationship that was proven to be significant at 95%).

Moreover, repetition is directly related with the inability to complete the level and graduate. In Mexico, repetition at LS level has particular characteristics. A student can fail up to four subjects without the need to repeat the grade. As a result students will be asked to sit an extraordinary exam which can accumulate over the following years in LS education, and students have 3 chances each year to sit the exam. When the number of failed subjects accumulates to five or more, a student has to repeat the whole academic year, but in most cases students decide to drop out from LS at that stage, especially students coming from a disadvantaged backgrounds (Weiss et al. 2005).

Failing is difficult to measure in Mexico, as there is no official data available. LS schools report the number of failed subjects at the end of the academic year but this may vary according to when it is reported. The number of failed subjects may change when students pass what will not be reported in records. The way I chose to report this variable is using the context Questionnaire of EXCALE09 in 2008, where a question was included on the number of subjects failed in LS is found: 56 percent of students reported that they never failed a subject in LS, 32 percent reported that they failed from one to two subjects, 9 percent three to four subjects and finally 3 percent more than four subjects.⁸⁹ The responses show that the pattern of better results for girls prevails; from the students that reported failure in

⁸⁹ It is important to keep in mind that those responses come from students in the 3rd grade of LS. That means that cannot include the information of students' failed subjects in 3rd grade as by the time of the questionnaire they would not have completed the academic year.

three to four subjects 60 percent are boys while 39 girls, also from those that failed four or more 67 percent are boys while only 33 percent where girls.⁹⁰

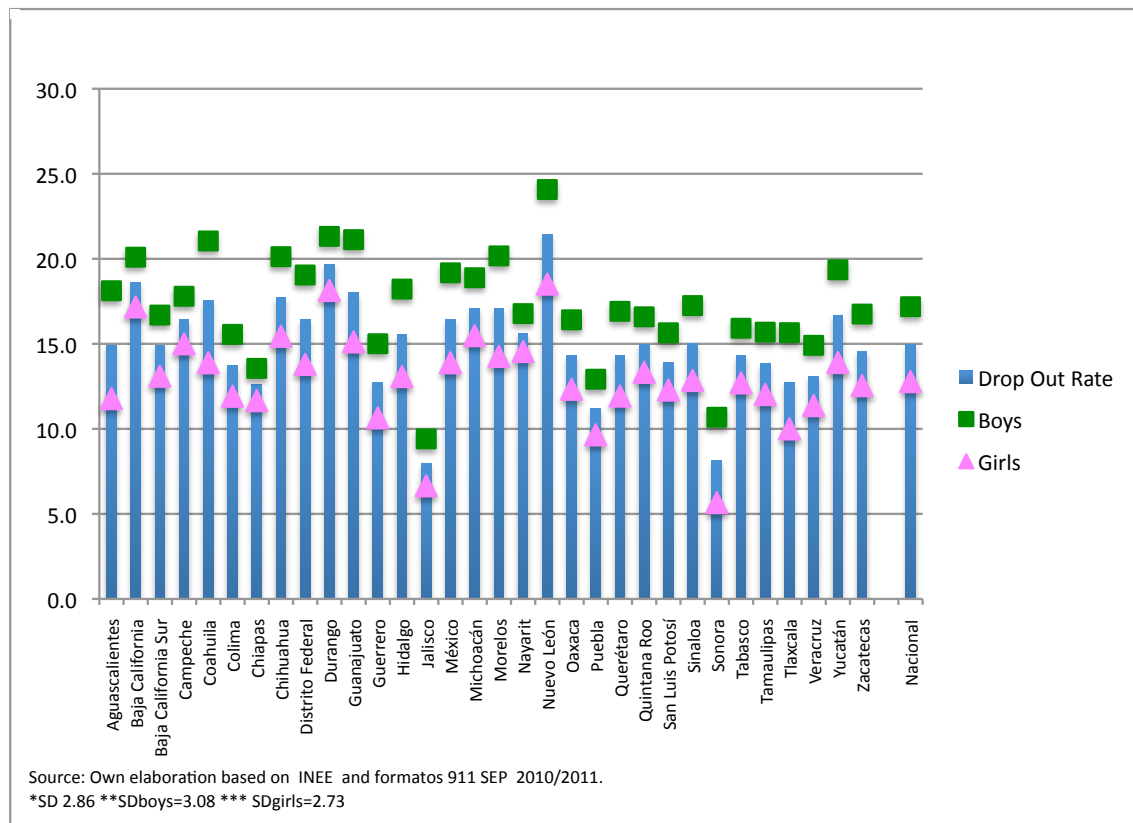
Additionally, the lack of enjoyment and importance given to education among adolescents have been proven to be a reason to quit school at LS; that have also been associated with the high level of repetition at the level (Weiss et al. 2005). There is no statistical information on the reason why students at LS level have dropped out. Whether the reason is their socioeconomic situation or it is in fact lack of motivation remains obscure but data from the 2010-2011 academic year show that 15 percent of LS students drop out temporarily or definitively. The drop out rate of boys at this level is 17.2 percent while for girls it is only 12.8 percent, which means that girls can have better chances of completing the level as they are less likely to leave school. The drop out rate varies greatly amongst States. Some States have very low drop out rates, on average 10 percent (Jalisco, Sonora and Puebla), while in others such as Nuevo Leon, Durango and Baja California LS drop out rates doubled.⁹¹ As the Graph A1 shows, girls present better drop out rates than boys in all States. In some States the gap between them is almost nil such as in Chiapas, Nayarit, Baja California Jalisco, which suggest that girls and boys have equal chances of staying at school. In other States the gender gap is higher and girls clearly show lower drop out rates (of almost 5 percent points); such States are: Aguascalientes, Coahuila, Nuevo Leon, Sonora and Hidalgo. For example, Nuevo Leon, the State that has the second highest enrolment rate at the level,⁹² it shows poor results in retention at LS level at the same time.⁹³

90 The LS repetition rate at national level in 2011 is 15 percent, from which at 1st grade of LS is 16 percent, 18 percent in 2nd grade, 12 percent in 3rd grade. Historically, the more complicated year for LS students is 2nd grade followed by 1st grade (Weiss et al., 2005); at the last grade students seem to get more stable.

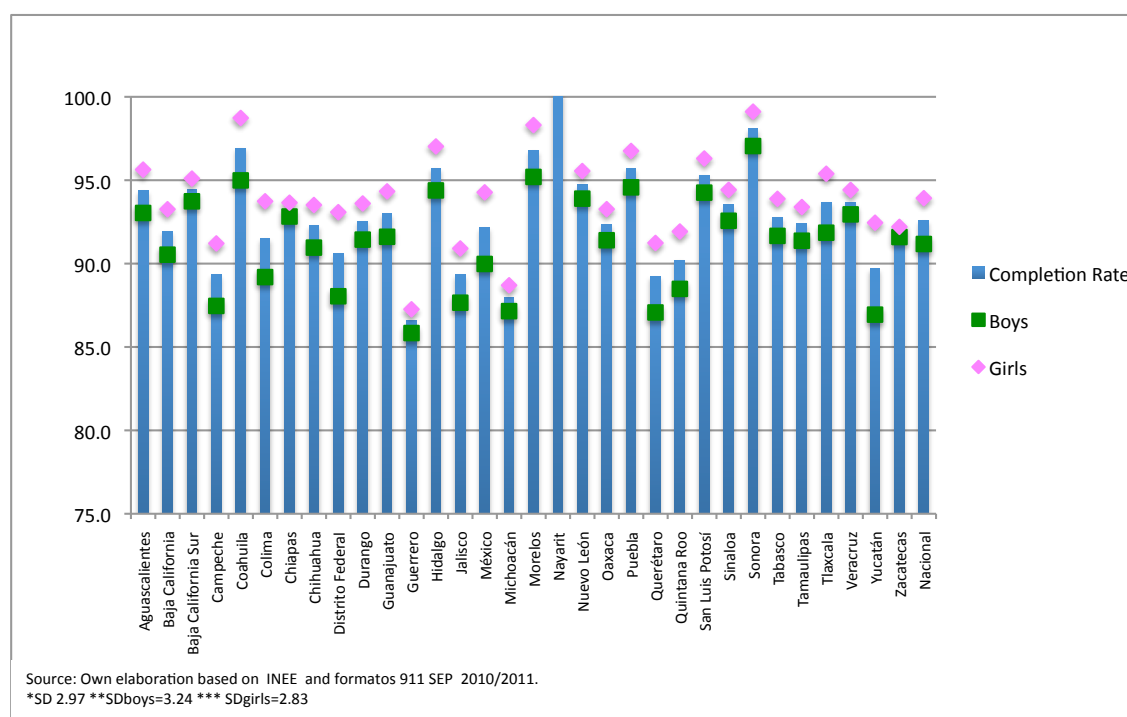
91 The drop out rates at LS by States has a standard deviation of 2.86, but with a greater difference by gender. For boys the standard deviation is 3.08 while for girls it is 2.73; that suggests that between States there is a greater variance in drop out between States for boys (statistically significant at 95%)

92 Nuevo Leon usually shows the best education outcomes, along side with the Federal District associated with a high level of economic development.

93 The evident gender gap is also interesting. The reason why almost 25 percent of boys are leaving school without finishing LS is beyond the level of this analysis but it can be associated either with the high migration, (violence and conflict in the State has been causing migration between States)

Graph A1 Lower Secondary Drop Out Rate By State 2010/2011

Furthermore, [Graph A2](#) shows LS students' completion rate by State. At national level, 92 percent of the LS students that started the academic year in 2009 completed the grade in 2010. The variation between States is 2.97 standard deviations. Michoacan and Guerrero are the States that have the lowest completion rates in the period with an average of 87 percent of the students completing the academic year. Nayarit presents an over 100 percent graduation rate in the period which suggests that the number of students enrolled at the end of the academic year exceeds the amount of students at the beginning of the academic year. A reason for that can be that there was a student mobility movement between States which produces that while students from other States enrolled or that previous drop outs returned to school again during the academic year. As the graph also suggests, there is a difference in graduation rates between boys and girls, although in all cases boys have less chances of completing than girls which corresponds with drop out rates.

Graph A2 Lower Secondary Completion Rate by State 2010/2011

Finally, referring to students that not only complete LS but obtain the LS certificate, data shows 62 percent of students that started 1st grade in 2008/2009 academic year completed and graduated in 2010/2011. If we compare the results by school funding then we can observe a difference between public and private schools: 12 percent of students in public schools do not graduate (22 percent boys and 15 percent girls) while in private schools only 5 percent of students that started in 2008 did not graduate in 2010 (6 percent boys and 4 percent girls). Additionally, there are graduation differences among States: in States such as Hidalgo, Nuevo Leon and Tlaxcala where 86 percent of students graduate in normative time; while in others such as Campeche, Guanajuato and Michoacán, less than 74 percent of students graduate at appropriate time.

Table A1. The UPS Schools Options by administrative Control in Mexico

Administrative Control	Option	Number of schools
Centralised from the FG	Centre for Industrial Technology and Services (CETIS)	306
	Centre for Baccalaureate on Technology and Services (CBTIS)	413
	Centre for Baccalaureate on Agricultural Technology (CBTA)	207
	Centre for Baccalaureate on Forestal Technology (CBTF)	6
	Centre for Baccalaureate on Technology of the Sea (Cetmar)	35
	Centre for Baccalaureate on Technology of the Continental Sea (CETAC)	2
	Centre for Baccalaureate Studies (CEB)	47
	College for Technology Studies (CET)	2
	Centre for Technologic and Scientific Studies (CECYT)	30
	National Institute of Fine Arts (INBA)	23
	Baccalaureate of SEDENA, ISSSTE, SAGARPA, PGR	10
	Preparatoria Federal Lazaro Cardenas, Tijuana BC	1
Decentralised from the FG	National College of Technic Professional Education (CONALEP) DF and Oaxaca	66
	CETI Guadalajara	3
	Colegio de Bachilleres DF	40
Decentralised from State Governments	College of Scientific and Technologic Studies (CECyTE)	586
	Colegio de Bachilleres	1246
	National College for Technic Professional Education (Conalep)	427
	Distance UPS (EMSAD)	536
	Telebachillerato	2
	Intercultural Baccalaureate	6
	Other programs of State governments	126
Centralised from States Government	Telebachillerato	1697
	Distance UPS (EMSAD)	209

	Comunitarian Baccalaureate	32
	Technologic Studies Centre	43
	State Fine Art Institutes	1
	Other programs from the State government	1512
Centralised from the Federal District	Preparatorias del gobierno del Distrito federal	17
Autonomous	Science and humanities College (CCH)	8
	Escuela Nacional Preparatoria (ENP)	18
	Baccalaureate of Autonomous Universities	776
Private	Fine Art State Institutes	5499
Subsidiaries	Preparatorias Federales por cooperación	384
	Telebachilleratos por cooperación	111
TOTAL		14427

Source: INEE 2011. La educación media superior en Mexico. Mexico City: INEE

Appendix Chapter 5

Method for the analysis of the transition process

Chapter 5 uses an inductive approach to interpret why the transition process from LS to UPS works in the way it does in Mexico. I try to understand the transition process to UPS by examining the context through their participants (actors and formal and informal institutions). I use a qualitative documentary analysis as methodology.

The documents reviewed come from official sources such as government regulations (the National Constitution in particular the 3rd article that focus on education, the LGE, the ANMEB, the Reform of the UPS) as well as published information on web pages from SEP, States' ministries of education and schools. I also reviewed nonofficial sources such as published media articles, advertisement in media regarding the transition process and reports from the external examination institutions involved. Furthermore, academic documents are also reviewed, including articles or papers on how LS and UPS levels works in Mexico and particularly the transition between them, as well as literature on how the decentralisation of education has been working in Mexico, in particular the decentralisation of UPS.

The sources of information used are enlisted below.

Sources of information

Legal documents:

- Constitución Política de los Estados Unidos Mexicanos
- Acuerdo Nacional para la Modernización de la Educación Básica
- Ley General de Educación
- Reforma Integral de la Educación Media Superior en México

Journals:

- Revista Mexicana de Educación
- Revista Mexicana de Investigación Educativa

Newspapers at National level:

- Periodico Reforma www.reforma.com
- Periodico El Universal www.eluniversal.com.mx
- Periodico Excelsior www.excelsior.com.mx
- Periodico El Sol del Mexico www.oem.com.mx/elsoldemexico

Newspapers at State level:**Aguascalientes:**

HIDROCÁLIDO www.hidrocalidodigital.com

EL SOL DEL CENTRO www.elsoldelcentro.com.mx

Baja California:

EL MEXICANO www.el-mexicano.com.mx

FRONTERA www.frontera.info

Baja California Sur:

EL SUDCALIFORNIANO www.elsudcaliforniano.com.mx

Campeche:

TRIBUNA www.tribunacampeche.com

EL SUR DE CAMPECHE www.elsur.mx

NOVEDADES CAMPECHE www.novedadescampeche.com.mx

Chiapas:

CUARTO PODER www.cuartopoder.mx

DIARIO DE CHIAPAS www.diariodechiapas.com

EL HERALDO DE CHIAPAS www.elheraldodechiapas.com.mx

Chihuahua:

EL DIARIO DE JUÁREZ www.diario.mx

NORTE www.nortedigital.mx

EL MEXICANO www.periodicoelmexicano.com.mx

Coahuila:

ZÓCALO www.zocalo.com.mx

EL GUARDIÁN www.elguardian.com.mx

NOTICIAS DE EL SOL DE LA LAGUNA www.noticiasdelsoldelalaguna.com.mx

EL HERALDO DE SALTILLO www.elheraldodesaltillo.mx

Colima:

ECOS DE LA COSTA www.ecosdelacosta.com.mx

EL MUNDO DESDE COLIMA www.elmundodesdecolima.mx

Federal District:

REFORMA www.reforma.com

EL UNIVERSAL www.eluniversal.com.mx

Durango:

EL SOL DE DURANGO www.elsoldedurango.com.mx
 EL SIGLO www.elsiglodedurango.com.mx

Guanajuato:

EL SOL DE IRAPUATO www.elsoldeirapuate.com.mx
 EL SOL DEL BAJÍO www.elsoldelbajio.com.mx

Guerrero:

PUEBLO www.pueblo-guerrero.com
 DIARIO DE GUERRERO www.verticediario.com
 OBJETIVO www.diarioobjetivo.com.mx

Hidalgo:

EL SOL DE HIDALGO www.elsoldehidalgo.com.mx
 PLAZA JUÁREZ www.plazajuarez.mx

Jalisco:

EL INFORMADOR www.informador.com.mx
 MURAL www.mural.com
 LA JORNADA JALISCO www.lajornadajalisco.com.mx

México:

EL DIARIO DE TOLUCA www.diariodetoluca.com.mx
 EL SOL DE TOLUCA www.elsoldetoluca.com.mx

Michoacán:

LA VOZ DE MICHOACÁN www.vozdemichoacan.com.mx
 CAMBIO DE MICHOACÁN www.cambiodemichoacan.com.mx

Morelos:

LA UNIÓN DE MORELOS www.launion.com.mx
 DIARIO DE MORELOS www.diariodemorelos.com

Nayarit:

DIARIO CONSENSOS www.consensos.com.mx

Nuevo León:

EL NORTE www.elnorte.com
 MILENIO MONTERREY monterrey.milenio.com

Oaxaca:

EL IMPARCIAL www.imparcialoaxaca.mx
 DESPERTAR www.despertardeoaxaca.com

Puebla:

EL SOL DE PUEBLA www.elsoldepuebla.com.mx
 SÍNTESIS www.sintesis.mx
 LA JORNADA DE ORIENTE www.lajornadadeoriente.com.mx

Querétaro:

DIARIO DE QUERÉTARO www.diariodequeretaro.com.mx
 EL CORREGIDOR www.elcorregidor.com.mx
 EL PERIÓDICO DE QUINTANA ROO www.elperiodico.com.mx

Quintana Roo:

NOVEDADES DE QUINTANA ROO www.novedadesdegroo.com

LA VERDAD DE QUINTANA ROO www.diariolaverdad.com.mx

San Luis Potosí:

EL SOL DE SAN LUIS www.elsoldesanluis.com.mx

PULSO www.pulsoslp.com.mx

LA JORNADA SAN LUIS www.elheraldoslp.com.mx

Sinaloa:

EL DEBATE www.debate.com.mx

NOROESTE www.noroeste.com

Sonora:

EL IMPARCIAL www.elimparcial.com

DIARIO DEL YAQUI www.diariodelyaqui.mx

Tabasco:

TABASCO HOY www.tabascohoj.com.mx

PRESENTE www.diariopresente.com.mx

Tamaulipas:

EL MAÑANA www.elmanana.com

VALLE DEL NORTE www.valledelnorte.com.mx

Tlaxcala:

SÍNTESIS TLAXCALA www.sintesis.mx/tlaxcala

EL PERIÓDICO DE TLAXCALA www.elperiodicodetlaxcala.info

Veracruz:

DIARIO XALAPA www.diariodexalapa.com.mx

MUNDO:

DIARIO DE YUCATÁN www.yucatan.com.mx

LA VERDAD YUCATÁN www.laverdadyucatan.com

Zacatecas:

EL SOL DE ZACATECAS www.elsoldezacatecas.com.mx

LA JORNADA ZACATECAS www.ljz.mx

School Websites:

CETIS, CEBTIS, CEBTA www.dgeti.sep.gob.mx/index

Conalep www.conalep.edu.mx

Cobach by State level www.cobachSTATE.edu.mx

The characterisation of the transition process to UPS in Mexico

I looked for official guidelines on the transition process to UPS, both at federal and State levels. I selected documents that were useful to understand historically how the transition process has evolved. I started with the decentralisation process in

Mexico and the different actors that participated and their level of influence over time. This historical analysis is used as the foundation to identify the different economic, political, social and policy characteristic of the States and how those are related to the way the transition process to UPS operates.

Additionally, the information obtained through the documentary analysis is also used to identify actors and their role in different contexts as well as the identification of formal and informal institutions involved in the transition process. I develop a characterisation of the transition process and construct a mapping of how the process is done by State level. With the characterisation I obtain a list of actors that influence the process at State level. The aim in doing that was to increase the understanding of each actor and to get more information on the level of influence they have within the process.

It is assumed that the relative influence that certain actors have varies from State to State. That is due to the decentralisation of the education system, and the relative autonomy that States were found to have in the selection of transition process to follow. In this sense the actors were reviewed and analysed within the interactions they have at State level and not by their general participation in the Mexican context as a whole.

With the characterisation performed and the information gathered I performed the political economy analysis focusing on the factors highlighted in Figure 5.1. I studied the way the transition process to UPS works and how it has evolved over time. I began with the study on how the decentralisation of the education system in Mexico has defined the way States have assumed the power and control over the local education provision and its impact into the way UPS operates. Furthermore, I perform an in-depth enquire on how the transition process operates at each State to get information on the actual procedures of application, the actors that are involved, as well as the cost that the transition represents for the different actors involved. That has as result a more insightful characterisation of the transition process.

The characterisation of the transition process identifies the actors that are involved by State level. I analyse the information by evaluating the level of influence that

each actor has depending on the amount of responsibility they have when compared to other instances within the State. For example, the examination institution that designs the entry exam can be the same in two states. Nevertheless, depending on the process to be followed in a particular State, the same institution can be in charge of the selection of the total population of applicants to UPS while in other States it can be only responsible for a certain percentage of applicants to a particular type of school. In this example the same institution may have high influence in the first State and medium in the second one. Finally, the cost of their interactions and the impact that has on students' accessibility of information and other education outcomes is discussed. The detailed mapping is included in Table A2.

To perform a complete characterisation of the transition process I followed the steps necessary to apply to UPS. I identified the information applicants would need to find as guide for my search. The information is: school options, application procedure, requirements and costs, deadlines, process of selection, and academic year start dates.

The results can be summarised as follows:

- I found that few States have clear information: Aguascalientes, Baja California, Colima, Federal District, Puebla, Sonora and Tabasco, where information on the process of transition was explicitly stated.
- Other States had some information at the Ministry's website, although not complete and in most cases without straightforward access.
- Some States show a complete lack of information. In some of these cases not even a UPS webpage exists; while in others even if the webpage exists, it is only as part of the State's education webpage and include mainly contact information.

Furthermore I collected information by State level on transition characteristics such as: accessibility to transition information and UPS schools available in Table A3; education characteristics such as enrolment and completion rates at LS and UPS levels in Table A4; social/economic factors such as: marginalization and

education expenditure at State level in Table A5; as well as, political factors such as type of teachers union and political parties in Table A6.

Table A2 Transition Process Characterisation by State

Code	State	Availability of information at the State's website	Availability of information online and in the media	CENEVAL's catalogue	Options of UPS available	Transition Description	Selection	Type of Exam	Year	Total UPS schools	Total schools that use Exam	Cost ¹	Transition Characterisation
1	Aguascalientes	Links Available to the main public UPS options in the State. The State has a catalogue with all the UPS schools contact details and admission fees.	The media advertise and interviews main agents in the transition.	There are few private and CECyTS schools registered in the catalogue at Aguascalientes City	CECyTEA, EMSAD, CEPTEA, DGB, DGETA, DGETI, private UPS, UAA UPS Bachillerato de la Normal del Estado de Aguascalientes y Preparatoria Abierta.	Minimum Admission Criteria Process (MAC) at State's schools. Only diagnose exam requested at Federal schools and some private.	LS performance (grades and behaviour)	Diagnose-EXANI I at few schools	-	148	17	107	Minimum Admission Criteria Process (MAC)
2	Baja California	Catalogue of schools available. The State has an annual fair to promote UPS options available. The State has a particular interest in the process of transition, diagnose and selection and has its own mean of selection: EXHCOBA.	The media has some articles on the process of application to UPS and publish results.	There are CECYTE and CONALEP schools, as well as some private institutions registered in Mexicali, Tijuana, Morelos City, Playa el Rosarito, Ensenada, San Quintin and more	COBACH, CECYTE y CONALEP. CBTIS, CETIS, CECATIS, CBTA CETMAR and "Lázaro Cárdenas" Upper secondary, preparatorias from the Autonomous university.	Single Selection Exam scores define selection	Performance in the Exam	Unique Selection Exam-EXHCOBA	2010	292	292	1000	Standardised Entry Examination Process (SEE).
3	Baja California Sur	No relevant information at the Ministry Website.	Not much information published in the media	There are CECYTE and CONALEP schools registered at the main cities of Los Cabos and La Paz.	COBACH, CONALEP, Tecnológico schools and Private institutions	Minimum admission criteria at preference school. Only diagnose exam requested in Colegio de Bachilleres, Colegio de Estudios Científicos y Tecnológicos and some private schools	LS performance (grades and behaviour)	Diagnose examination used in CECyTES and Conalep and private schools.	-	75	17	130	Minimum Admission Criteria Process (MAC)
4	Campeche	No relevant information at the Ministry Website.	Not much information published in the media. Some information on how the Colegio de Bachilleres will change the process in 2013 was found.	There are CECYTE and CONALEP schools registered at the main municipalities of Carmen, Calixtlá and Campeche.	COBACH, CONALEP, CECYTE and Private institutions	Only the autonomous university schools request a selection exam. The State has a Minimum Admission Criteria. Colegio de Bachilleres, is going to start a selection process in 2013	LS performance (grades and behaviour)	Diagnose - EXANI I and in some schools. In 2013 COBACH will start using selection exams	-	105	23	130	Minimum Admission Criteria Process (MAC)
5	Coahuila de Zaragoza	Relevant information at the Ministry's Website although not with easy access. The procedure of transition is only explained for two schools options	No media coverage on transition process, neither articles found on transition to UPS.	There are few CECYTE and private schools registered at the main municipalities of Saltillo, Monclova, Matamoros and Torreon	COBACH, CECYTE, State Autonomous, Private	Minimum Admission Criteria at some schools. Selection Exam at COBACH, CECyTES and private institutions	LS performance (grades and behaviour) at some schools or EXANI I performance at COBACH and CECyTES	Selection exam in COBACH and CECyTES-EXANI I	-	408	221	250	Mixed Admission Criteria Process (MixAC)
6	Colima	Catalogue of schools available. It is clearly specified that institutions request an admission exam.	No media coverage on transition process, neither articles found on transition to UPS.	Only private institutions are registered in the catalogue	COBACH, CONALEP, Tecnológico schools and Private institutions	At some schools an examination is requested, nevertheless it seems that each school chose the type of examination to have and more likely are designed within the institution as no information is found at external examination institutions	LS performance (grades and behaviour)	Diagnose-EXANI I	2006	78	6	200	Minimum Admission Criteria Process (MAC)

7	Chiapas	No relevant information at the Ministry Website	The media has news since 2008 that an exam is requested at COBACH since 2008	COBACH, CECYTE and preparatorias of the State are included in the catalogue at Tuxtla Gutierrez, Tapachula, Ocosingo and San Cristobal de las Casas	COBACH, Technologic schools, CONALEP, State's general schools and CECYTE	Minimum Admission Criteria at most schools only Cobach and CECYTE request EXANI I as diagnose	Mainly LS performance (grades and behaviour) although COBACH is using EXANI I as mean of selection	Diagnose Cobach and CECYTE-EXANI I	2008	596	99	0	Minimum Admission Criteria Process (MAC)
8	Chihuahua	There is a Sub ministry webpage on UPS with some information on school option, nevertheless there is no information on how the transition is performed	No relevant information found on the process until late at the application for 2012 it was advertised that there is a standardised selection process to be followed.	Very few COBACH and CECYTE of the State are included in the catalogo at Juarez, Cuauhtemoc, and Chihuahua	CBTA, CBTIS, CETIS, CEB, CECYTECH, Technologic schools, COBACH, Educación Media Superior a Distancia, CEDART, COBACH, CONALEP, PREFECO	All applicants have to follow the same standardised process of application, the exam is the EXANI I .	Performance in EXANI I and school availability	Selection Exam-EXANI I	2012	487	487	180	Standardised Entry Examination Process (SEE)
9	Distrito Federal	Clear and relevant information on transition all year through . There is an institute on charge of the transition to UPS. Information with examples on how to apply and the submission process is available. Information on the different school options available	Media has lots of articles on transition procedures and results, as well as a follow up for rejected students mobilizations.	All schools are registered	Colbach, Centros de Estudios de Bachillerato (CEB-DGB) Cobaem-SE), UAEM, ENP-UNAM, CCH-UNAM, EMSAD-SE CBTA, CBTIS, CETIS, CECYT-IPN, CET-IPN, CECYTEM-SE, Centros de Bachillerato Tecnológico (CBT-SE), Conalep,	All applicants have to follow the same standardised process of application, the exam is the EXANI I .	Performance in EXANI I and school availability	Selection Exam-EXANI I	Since 1996 and in 2000 includes preparatorias of UNAM	682	682	400	Standardised Entry Examination Process (SEE)
10	Durango	No relevant information at the Ministry Website	No news on transition process to UPS in the state	The webpage includes Cobach and CECyTs suggesting that in this schools a selection exam I required	COBACH, CONALEP, CBTIS, CETIS, CECyTs	Minimum Admission Criteria at preference school. Only diagnose exam requested in Colegio de Bachilleres, Colegio de Estudios Científicos y Tecnológicos and some private schools	Minimum Admission Criteria at most schools. Selection Exam requested at Cobach and Cecyts	Selection exam in COBACH and CECyTs-EXANI I	-	219	43	200	Mixed Admission Criteria Process (MixAC)
11	Guanajuato	The Ministry's website has a catalogue of schools available.	No news on transition process to UPS in the state	The web page suggests that Cecyts and CEPTEA as well as some private schools use EXANI I	COBACH, Colegio de Educación Profesional Técnica, CECyTs, preparatorias from the Autonomous university	Mixed EXHCOBA and EXANI I are used at schools as a mean of selection, the applicant has to choose the school of preference and apply there.	CECyTs, and CEPTEA use EXANI I the Autonomous university in the State EXHCOBA	Selection exam CECyTs-EXANI I and Selection exam at preparatorias from the autonomous university-EXCOBA	-	742	167	520	Mixed Admission Criteria Process (MixAC)
12	Guerrero	The ministry does not have relevant upper secondary information	No news on transition process to UPS in the state. There are articles published in press on how the UPS education provision is not of quality in the state as well as the issues on equality of permanence	No COBACH and CECyTs and some private schools are part of the catalogue	Preparatorias from the autonomous University, COBACH, Conalep, Cecyteg, CETIS, CEBTAS and private schools	Some schools have a diagnose exam from EXANI I	LS performance (grades and behaviour) at most schools. COBACH and CECyTs may use EXANI I as diagnose exam	Diagnose-EXANI I	-	322	40	75	Minimum Admission Criteria Process (MAC)

13	Hidalgo	The ministry's webpage doesn't have relevant information	Information was widely advertised for 2012 application process. Information on when the exam was going to take place as well as how many points are needed to be accepted. There are articles published on the efforts to expand the UPS education in the State	Bachilleratos, COBACH, CECyT and Private schools use EXANI I as a mean of selection	COBACH, state preparatorias CONALEP, CBTIS, CETIS, CECyTs and private institutions	EXANI I is used as mean of selection but is up to the school when to do it. Students can use the results obtained in one institution to apply to another when rejected. The state has agreed number of points required for a student to be accepted	Some schools EXANI I and in the rest LS performance (grades and behaviour)	Selection exam at COBACH and CECyTs -EXANI I	-	307	142	300	Mixed Admission Criteria Process (MixAC)
14	Jalisco	The ministry does not have relevant upper secondary information	The media shows that state university preparatorias have to sit an exam. This exam is the same for all the preparatorias. They show deadlines, procedures, and when the results will be publish.	COBACH, CECyT and Private school are registered in the catalogue	COBACH, CBTIS, CETIS, CONALEP, preparatorias of the autonomous university, CECYTE	The student has to choose in advance what school. The COBACH, CECyT and university preparatorias will request an exam	Based on their scores at the exam they will be allocated in their preferred school (Preparatorias)	Selection exam at autonomous universities PIENSE II COBACH and CECyTs EXANI I	-	806	679	120	School-based Entry Examination Process (SBEE)
15	México	The ministry's webpage doesn't have information on UPS	With an online search it possible to find lots of information.	All modalities of schools are registered in the catalogue	Colbach, Centros de Estudios de Bachillerato (CEB-DGB), Cabaem-SE, UAEM, ENP-UNAM, CCH-UNAM, EMSAD-SE, CBTIS, CBTIS, CETIS, CECYT-IPN, CET-IPN, CECYTEM-SE, Centros de Bachillerato Tecnológico (CBT-SE), Conalep,	22 municipalities that are part of the metropolitan area of Mexico city the selection exam "Examen Único" (DF). The remaining 102 municipalities use an exam as mean of selection, the exam is the same for all applicants	All students regardless the school of preference will sit a selection exam (either the State one or the one for the metropolitan area)	EXANI I - all schools	1990	1342	1342	380	Standardised Entry Examination Process (SEE).
16	Michoacán de Ocampo	The ministry's website explains in broad terms what options of UPS are available in the State	In the news is shown that the preparatorias from the state university request an exam although is advertised that the state has capacity to enrol all students therefore a selection exam in not needed. The Cobach responded in the news that the exam will be use either as selection or as diagnose according to the school demand and availability	Cobach, CECyTs and some private schools use EXANI I	COBACH, State preparatorias, CBTIS, CETIS, CONALEP, private institutions.	The Cobach and CECyTs use EXANI I exam to either diagnose or select. Student that want to enrol at those schools will need to sit an exam at the institution. Also students that want to enrol in a preparatoria that belong to the state University will need to sit an exam	The selection is done at some institutions based student's exam performance. In other institutions the application requires a diagnose. Very few institutions in the state do not request any exam.	Selection and diagnose depending on the school EXANI I - Cobach, CECyTs and some private	-	377	279	213	School-based Entry Examination Process (SBEE)
17	Morales	The ministry's webpage doesn't have relevant information. It includes a link to the State (polytechnic) university where is shown the application procedure for the preparatorias	Not relevant information found on media	Cobach, CECyTs and some private schools use EXANI I	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student has to apply directly at the preferred school where would need to sit a selection exam	The exam is the mean to select students, at the preparatorias of the Autonomous university. The allocation of students is completed by availability in schools.	Selection EXANI I - Cobach, CECyTs and some private and preparatorias	-	309	257	250	School-based Entry Examination Process (SBEE)
18	Nayarit	The ministry does not have relevant upper secondary information in the website	Looking separately for information in the media on application process to UPS found different news for different institutions. The States autonomous university request an exam that is the EXHCOBA	Telepreparatorias, CECyT and some private use EXANI I	COBACH, CONALEP, CBTIS, CETIS, CECyTs, private institutions	The student has to apply directly at the preferred school where would need to sit a selection exam. The exam can be different on the option of school selected.	Schools use the results in the selection exam to enrol the most qualified	EXHCOBA - preparatorias EXANI I - Telepreparatorias, CECyTs and some private school	-	259	176	300	School-based Entry Examination Process (SBEE)

19	Nuevo León	The ministry does not have relevant upper secondary information in the website	The media has some information on the transition process. The autonomous university requests EXANI I	The ceneva catalogue has included all types of options	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student has to choose in advance what school, but a selection exam is most likely to be requested	Selection is done based on the points obtained in the exams and schools availability	Selection exam at most schools- EXANI I	-	446	440	600	School-based Entry Examination Process (SBEE)
20	Oaxaca	The ministry does not have relevant upper secondary information in the website	The media shows that schools that belong to the state university requests an exam	Cobach and Instituto de Estudios de Bachillerato del estado de Oaxaca use EXANI I	COBACH, Technologic schools, CONALEP, State's general schools and CECYTE	The student selects the school of preference, some will request an exam, some will not	Depending on the school the selection can be based on the performance in an exam or by providing the prove documents requested.	Selection exam at Cobach and Instituto de Estudios de Bachillerato del estado de Oaxaca- EXANI I	-	612	320	246	School-based Entry Examination Process (SBEE)
21	Puebla	The ministry's website have detailed information on what option of schools are available and how to apply	The media show that the preparatorias of the State university are higher demand the exams they use vary. Can be an exam called PIENSE II or the college board	COBACH and Private schools request EXANI I	COBACH, Colegio de Educación Profesional Técnica, CECyTs, preparatorias from the Autonomous university, CBTIS, CETIS, private institutions	The student has to apply directly at the preferred school where would need to sit a selection exam.	Selection is done based on the points obtained in the exams and schools availability	Selection exam at preparatorias of the autonomous university College Board/ PIENSE II. At Cobach- EXANI I	-	1343	878	600	School-based Entry Examination Process (SBEE)
22	Queretaro	The ministry's webpage doesn't have relevant information	The media has information on the transition process in the state. Using the media the calls and requirements are announced	Cobach, CECyTs, preparatoria de la universidad autonoma de Queretaro and some private schools use EXANI I	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias private institutions	The student has to apply directly at the preferred school where would need to sit a selection exam.	Selection is done based on the points obtained in the exams and schools availability	EXANI I- Cobach, CECyT and preparatoria de la UAQ EXHCOBA-Escuela de bachilleres	-	214	138	620	School-based Entry Examination Process (SBEE)
23	Quintana Roo	The State doesn't have an education ministry webpage on its own. Although looking at the state government services and procedures it shows that they have a unique application call for UPS	The media advertise the process of transition, the procedures to be followed and the conflict	Cobach, CECyTs and some private schools use EXANI I	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias, state preparatorias, private institutions	All applicants have to follow the same standardised process of application, the exam is the EXANI I.	Selection is done based on the points obtained in the exams and schools availability	EXANI I- Cobach, CECyTs and some private	2008	139	139	170	Standardised Entry Examination Process (SEE).
24	San Luis Potosí	The ministry does not have relevant upper secondary information	The media provided some advertisement when the process of application was soon to open	Cobach, CECyTs and some private schools use EXANI I	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias, state preparatorias, private institutions	The student has to apply directly at the preferred school where would need to sit a selection exam.	Selection is done based on the points obtained in the exams and schools availability	Selection Exam at COBACH and CECyTs- EXANI I		425	55	670	School-based Entry Examination Process (SBEE)

25	Sinaloa	The ministry does not have relevant upper secondary information	The media does not have relevant information publish on the transition process	Cobach and private institutions are registered in the catalogue	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias, state preparatorias, private institutions	The student has to apply directly at the preferred school where is at majority of schools the selection will be based on availability. Some schools may request the student to sit a diagnose examination which should not be considered in the selection	Majority of schools do not have additional admission criteria so LS performance (grades and behaviour) defines selection	Diagnose examination may be used at some Cobach and private institutions- EXANI I	-	324	74	100	Minimum Admission Criteria Process (MAC)
26	Sonora	The ministry has a sub webpage called "PrepaSonora" where all the UPS options are shown. There is a single application call with EXANI I as a tool	The media advertise the call for applications	Bachilleres and COBACH are registered in the catalog at all municipalities of Hermosillo, Huatabampo.	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student apply to the Unique call and select schools options. Student have to pay an application fee and wait till the date to sit the exam. The results are published showing the student and the allocated school. The student will finish the application at the school.	Selection is done based on the points obtained in the exams and schools availability	Selection Exam- all schools- EXANI I	-	253	253	43	Standardised Entry Examination Process (SEE).
27	Tabasco	The website shows that the state has a "Proceso unificado de ingreso a la educacion media superior" which is a single admission call for all UPS options in the state. The exam they use was designed in the state and they are in charge of managing it which they argue that is a saving for both students and academic institutions	The media advertise the call for applications	Some COBACH and CECyTES are registered in the catalogue	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias, state preparatorias, private institutions	The students apply to the Unique call and select schools options. Students have to pay an application fee and wait till the date to sit the exam. The results will be published showing the student and the allocated school. The student will finish the application at the school	Single application call. Places are assigned according to performance in the exam	Selection Exam- State exam	2008	269	269	260	Standardised Entry Examination Process (SEE).
28	Tampulipas	There is an official website for UPS level that includes information on school options and the type of curriculum each of them offer. There you can find information on the application and is only the COBACH that requests an EXANI I	The media doesn't have information on the process of transition nevertheless the media has information on school options and UPS coverage.	Some COBACH and CECyTES are registered in the catalogue at the main municipalities of Victoria Tampico Altamira Reynosa and CD Madero.	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student has to select an option of school and follow the application process that each institution has. Most school options in the state have minimum admission Criteria. Only in Cobach they may request an exam.	LS performance (grades and behaviour) defines selection. In Cobach they will be asked to sit an exam	Selection EXANI I- Cobach, CECyTs and some private	-	340	122	179	Mixed Admission Criteria Process (MixAC)
29	Tlaxcala	The ministry does not have relevant upper secondary information	The media has information on the Unique call to apply for UPS in the state. This is coordinated by the "Comision estatal para la planeacion y programacion de la educacion media superior". The media suggest student that they have to make sure they meet the schools requirement. Also inform that school give 30% more exam spaces than their actual capacity. Videos on advertisement reviewed	Cobach, CECyTs and some private schools	COBACH, State preparatorias, CBTIS, CETIS, CONALEP, private institutions.	All students sit the exam on the same day at the institution where they want to study. The institution in itself gives certain amount of spaces for people to sit the exam related with the amount of students the can enrol. After the results are published the student has to provide the prove documents requested and pay an admission fee	The school selects the students according to their exam performance	Selection- EXANI I	2008	157	150	120	Standardised Entry Examination Process (SEE).

30	Vera cruz de Ignacio de la Llave	The ministry has a link to the unique application call to UPS	The media advertise that the exam the students sit is intended to be used as a diagnose that schools can use to check which are students weakness	Cobach, CECyT, Veracruz schools and some private schools	COBACH, CONALEP, CBTIS, CETIS, CECyTs, autonomous university preparatorias, state preparatorias, private institutions	The students select a school and sit a unique exam to apply. The exam is graded and used to allocate students. Students have to follow the admission procedure at the allocated school	Selection is done based on the points obtained in the exams and schools availability	Selection-EXANI I	2008	1604	1604	130	Standardised Entry Examination Process (SEE).
3	Yucatán	The ministry has a catalogue of schools	The media has information on the Unique call to apply for UPS in the state	COBACH and CECyTES are registered in the catalog at all municipalities	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student selects a school and performs the application process at it. Every student is requested to sit an exam	The exam students sit will be used as a selection tool in case of high demand. If the school has space to enrol all students that apply the exam will be used only as a mean on diagnose. If a student is no accepted at the school of preference can take the exam result to apply at a different school	Selection-EXANI I	2005	245	245	150	Standardised Entry Examination Process (SEE).
32	Zacatecas	The ministry does not have relevant upper secondary information	The media advertise that the schools that belong to the autonomous university request an exam	Cobach, CECyTs and some private schools	COBACH, CONALEP, CBTIS, CETIS, CECyTs, state preparatorias, autonomous university preparatorias, private institutions	The student has to apply directly at the preferred school where is going to be ask to sit a selection exam	Selection is done based on the points obtained in the exams and schools availability	Selection-EXANI I	-	178	80	250	School-based Entry Examination Process (SBEE)

Table A3. Transition process by State in 2012 and relevant transition characteristics

State	Type of Transition Process	Accessibility of transition process information	Average cost of transition	Total UPS Schools
Aguascalientes	MAC	High	107	148
Baja California Sur	MAC	Low	250	75
Campeche	MAC	Low	150	105
Chiapas	MAC	Low	0	596
Colima	MAC	Medium	200	78
Guerrero	MAC	Low	115	322
Sinaloa	MAC	Low	100	324
Coahuila	MixAC	Low	250	408
Durango	MixAC	Low	200	219
Guanajuato	MixAC	Medium	520	742
Hidalgo	MixAC	Medium	300	307
Tamaulipas	MixAC	Medium	179	340
Jalisco	MixAC	Medium	120	806
Michoacán	SBEE	Medium	213	377
Morelos	SBEE	Low	250	309
Nayarit	SBEE	Medium	300	259
Nuevo León	SBEE	Medium	600	446
Oaxaca	SBEE	Low	246	612
Puebla	SBEE	High	600	1343
Querétaro	SBEE	Medium	620	214
San Luis Potosí	SBEE	Medium	670	425
Zacatecas	SBEE	Medium	250	178
Baja California	SEE	High	1000	292
Chihuahua	SEE	Low	180	487
Distrito Federal	SEE	High	400	682
México	SEE	High	380	1342
Quintana Roo	SEE	High	170	139
Sonora	SEE	High	430	253
Tabasco	SEE	High	360	269
Tlaxcala	SEE	Medium	400	157
Veracruz	SEE	High	130	1604
Yucatán	SEE	High	150	245

Source: Own elaboration based on Transition to UPS mapping (2012). Data on education obtained from the education statistics of 2011 Dirección General de Planeación y Programación

Table A4 Education-social factors and transition characteristics

State	Type of Transition Process	Level of education	LS NER	Total LS Schools	LS Completion Rate	Average cost of transition	UPS NER	Total UPS Schools	UPS Completion rate
Aguascalientes	MAC	9.2	98.69	348	83.11	107	65.4	148	65.02
Baja California Sur	MAC	9.3	98.49	154	93.40	250	83.4	75	59.43
Campeche	MAC	8.7	97.38	318	73.98	150	63.3	105	59.75
Chiapas	MAC	6.7	89.20	1964	87.15	0	67.1	596	63.17
Colima	MAC	9	98.03	168	73.85	200	77.3	78	70.45
Guerrero	MAC	7.3	91.50	1735	78.06	115	59.3	322	67.81
Sinaloa	MAC	9.3	98.43	891	87.65	100	82.7	324	64.59
Coahuila	MixAC	9.5	98.42	550	83.16	250	66.6	408	59.18
Durango	MixAC	8.7	97.08	921	82.67	200	75.9	219	55.00
Guanajuato	MixAC	7.9	93.04	1671	83.03	520	59.4	742	57.75
Hidalgo	MixAC	8.1	98.29	1195	97.84	300	77.8	307	59.73
Tamaulipas	MixAC	9.3	95.86	751	80.96	179	67.9	340	61.78
Jalisco	MixAC	8.9	96.99	1918	76.19	120	64.7	806	64.62
Michoacán	SBEE	7.4	93.77	1592	61.58	213	61.2	377	59.07
Morelos	SBEE	9	99.42	477	91.44	250	76.1	309	57.97
Nayarit	SBEE	8.7	96.01	559	98.66	300	76.7	259	60.61
Nuevo León	SBEE	9.9	98.32	976	88.46	600	63.2	446	57.17
Oaxaca	SBEE	6.9	93.92	2286	84.76	246	61.6	612	62.77
Puebla	SBEE	7.9	94.45	2145	82.65	600	70.5	1343	71.88
Querétaro	SBEE	8.7	98.12	492	79.34	620	63.7	214	62.15
San Luis Potosí	SBEE	8.4	97.88	1641	87.12	670	65	425	66.72
Zacatecas	SBEE	7.9	97.86	1155	81.07	250	67.4	178	62.10
Baja California	SEE	9.4	98.46	606	80.67	1000	66.3	292	54.85
Chihuahua	SEE	8.8	92.12	831	84.48	180	67.9	487	57.78
Distrito Federal	SEE	10.6	105.92	1420	97.42	400	106.6	682	59.68
México	SEE	9.2	95.56	3636	84.91	380	63.2	1342	60.23
Quintana Roo	SEE	8.77	98.87	378	75.18	170	58.2	139	56.52
Sonora	SEE	9.4	99.84	695	92.69	430	76.9	253	62.68
Tabasco	SEE	8.8	98.95	745	89.30	360	80.3	269	66.68
Tlaxcala	SEE	8.8	99.04	356	92.61	400	72.3	157	66.86
Veracruz	SEE	7.7	95.97	3122	84.05	130	66.1	1604	67.73
Yucatán	SEE	8.3	99.70	595	58.78	150	66.4	245	58.66

Source: Own elaboration based on transition analysis. Education Information based on 2011 academic year from SEP-DGDP

Table A5 Economic and social factors and transition characteristics

State	Type of Transition Process	Type of Exam	Marginalisation	Federal education expenditure (FAEB)	% Contribution to GDP
Aguascalientes	MAC	NA	Low	2,234.6	1.1
BCS	MAC	NA	Low	1,599.7	0.64
Campeche	MAC	NA	High	2,110.1	5.13
Chiapas	MAC	NA	Very High	8,982.9	1.81
Colima	MAC	NA	Low	1,535.4	0.53
Guerrero	MAC	EXANI I	Very High	8,389.0	1.49
Sinaloa	MAC	NA	Middle	4,625.3	2.13
Coahuila	MixAC	EXANI I	Very Low	4,953.2	2.97
Durango	MixAC	EXANI I	Middle	3,839.8	1.28
Guanajuato	MixAC	EXANI I and EXCOBA	Middle	7,193.4	3.82
Hidalgo	MixAC	EXANI I	High	5,527.6	1.54
Tamaulipas	MixAC	EXANI I	Low	5,963.2	3.15
Jalisco	MixAC	EXANI I and PIENSE II	Low	9,017.8	6.34
Michoacán	SBEE	EXANI I	High	8,026.2	2.47
Morelos	SBEE	EXANI I	Low	3,201.4	1.11
Nayarit	SBEE	EXANI I and EXHCOBA	Middle	2,571.7	0.62
Nuevo León	SBEE	EXANI I	Very low	5,920.5	7.5
Oaxaca	SBEE	EXANI I	Very High	9,076.7	1.54
Puebla	SBEE	EXANI I and PIENSE II	High	8,019.1	3.34
Querétaro	SBEE	EXANI I and EXHCOBA	Middle	2,783.6	1.85
SLP	SBEE	EXANI I	High	5,331.9	1.88
Zacatecas	SBEE	EXANI I	Middle	3,633.9	0.88
Baja California	SEE	EXHCOBA	Very low	5,158.8	2.81
Chihuahua	SEE	EXANI I	Low	5,273.6	3.1
Quintana Roo	SEE	EXANI I	Low	2,330.7	1.44
Tabasco	SEE	State exam	High	3,944.6	3.43
Tlaxcala	SEE	EXANI I	Middle	2,243.2	0.54
Veracruz	SEE	EXANI I	High	12,962.3	4.7
Yucatán	SEE	EXANI I	High	3,218.8	1.43
Distrito Federal	SEE	EXANI I	Very Low	19,564.8	17.65
México	SEE	EXANI I	Low	16,574.5	9.19
Sonora	SEE	EXANI I	Low	4,356.5	2.56

Source: Own elaboration based on transition characterisation and Conapo 2006.
Expenditure information of 2011 obtained from SEP-DGDP

Table A6 Political factors and transition characteristics

State	Type of Transition Process	Type of Exam	Speed of decentralisation process ¹	No. of Teachers part of the Union ²	No. of Union Sections ³	Type of Unions ⁴	Prev. Political Party in power (0) ⁵	Political Party in power 2012 (1) ⁶
Aguascalientes	MAC	NA	Slow	10,409	1	Negotiator	PAN	PRI
Baja California Sur	MAC	NA	Slow	4,994	1	Negotiator	PRD	PAN
Campeche	MAC	NA	Slow	8,010	1	Negotiator	PRI	PRI
Chiapas	MAC	NA	Medium	51,156	2	Dissident	PRD	PRI
Colima	MAC	NA	Slow	6,318	2	Negotiator	PRI	PRI
Guerrero	MAC	EXANI I	Medium	43,219	1	Disputant	PRD	PRD
Sinaloa	MAC	NA	Slow	28,648	2	Negotiator	PRI	PAN
Coahuila	MixAC	EXANI I	Medium	24,627	3	Negotiator	PRI	PRD
Durango	MixAC	EXANI I	Medium	19,113	2	Negotiator	PRI	PRI
Guanajuato	MixAC	EXANI I and EXCOBA	Medium	49,122	2	Negotiator	PAN	PAN
Hidalgo	MixAC	EXANI I	Slow	28,738	1	Negotiator	PRI	PRI
Tamaulipas	MixAC	EXANI I	Slow	27,269	1	Negotiator	PRI	PRI
Jalisco	MixAC	EXANI I and PIENSE II	Medium	64,130	2	Negotiator	PAN	PAN
Michoacán	SBEE	EXANI I	Slow	47,857	1	Dissident	PRD	PRI
Morelos	SBEE	EXANI I	Slow	14,203	1	Disputant	PAN	PAN
Nayarit	SBEE	EXANI I and EXCOBA	Medium	11,843	2	Negotiator	PRI	PRI
Nuevo León	SBEE	EXANI I	Fast	38,145	2	Negotiator	PRI	PRI
Oaxaca	SBEE	EXANI I	Slow	61,522	1	Dissident	PRI	Convergencia
Puebla	SBEE	EXANI I and EXCOBA	Medium	52,453	1	Negotiator	PRI	PAN
Querétaro	SBEE	EXANI I and EXCOBA	Slow	17,558	1	Negotiator	PAN	PRI
San Luis Potosí	SBEE	EXANI I	Medium	20,501	2	Negotiator	PAN	PRI
Zacatecas	SBEE	EXANI I	Medium	17,252	2	Negotiator	PRD	PRI
Baja California	SEE	EXHCOBA	Fast	25,993	1	Negotiator	PAN	PAN
Chihuahua	SEE	EXANI I	Medium	29,546	2	Negotiator	PRI	PRI
Quintana Roo	SEE	EXANI I	Slow	9,884	1	Negotiator	PRI	PRI
Tabasco	SEE	State exam	Medium	20,262	1	Disputant	PRI	PRI
Tlaxcala	SEE	EXANI I	Medium	10,981	2	Negotiator	PRI	PRI
Veracruz	SEE	EXANI I	Medium	78,463	2	Disputant	PRI	PRI
Yucatán	SEE	EXANI I	Medium	19,691	2	Negotiator	PRI	PRI
Distrito Federal	SEE	EXANI I	N.A	84,121	4	Dissident	PRD	PRD
México	SEE	EXANI I	Fast	121,505	1	Negotiator	PRI	PRI
Sonora	SEE	EXANI I	Medium	22,562	2	Negotiator	PRI	PAN

Source: Own elaboration based on transition analysis⁹⁴

History of the transition process between lower secondary to upper secondary: from the decentralisation of the education system to the Upper Secondary Reform.

The way UPS operates in the present cannot be understood without the historical roots of how the decentralisation of the education system was done and how local education systems accepted the responsibility of education provision. It is also important to review how different actors participated in the process and the problematic faced during and after the decentralisation. Furthermore, to have a complete historical picture, I also review how UPS level has acquired importance in the present; in particular with the FG's promotion of the "UPS level Reform".

This section first presents the decentralisation of education since its inception. I present the problematic faced during the decentralisation by highlighting the actors involved. Finally, I present how the UPS level has developed as a result of the decentralisation and the importance it has acquired in the present.

The decentralisation of the education system

The decentralisation of basic education in Mexico began during the 70's and remained in the "making process" for over 20 years (Cabrero 1998; Tatto 1999). The process started when the FG claimed that a decentralisation was needed to improve the provision of education. It was argued that the high concentration of responsibilities of the Ministry of Public Education (SEP) and the great size of the education system was making it difficult to implement policies and operate the system. The FG's proposition hence was to gradually decentralise the educational system and adjust the distribution of educational functions to better serve the diverse interests of society and needs of modernisation. The major assumption was that local level management

⁹⁴ Fierro Evans et al., 2009 and Santibañez and Jaramillo 2007. Adaptation of Santibañez and Jaramillo 2007. A new characteristic of disputant was introduced for Unions that even not been dissident have been involved recently in dispute. Consejo Nacional de Gobernadores <http://www.conago.org.mx/> and 2012 Elections available at <http://www.eleccion2012mexico.com/partidos-politicos/mapa-de-gobiernos-por-estado>

of education would be more effective in addressing local needs, managing resources and improving education (Cabrero 1997).

It was not until 1992 that the president, the minister of education, governors of the 31 States and the teachers' unions represented by the National Coordinator of the Education Workers (CNTE) signed the ANMEB. Though the ANMEB, the States agreed that the FG was going to federalise basic and teachers education systems to the States. Also, it was established that the FG through SEP preserved the control over the key elements of the education system; namely responsibility for plans and programs, the substantive aspects of teacher allocation, and control over most of the economic resources. States' governments, on the other hand, were delegated only the operational education functions (Fierro Evans et al. 2009)). As a result, the decentralisation process in Mexico has been seen as an answer of the FG's need of transfer responsibilities, but not as a genuine concern about the content and quality of education (Bracho 2002; Cabrero 1998).

In 1993 a General Education Law (LGE) was approved as a result of the ANMEB. The LGE ratified that the FG government kept exclusive power in the direction and control over basic education in Mexico. The LGE was expected to strategically increase the legitimacy of the decentralisation process with gradual simultaneous reforms to reinforce the federalism (Ornelas 1998). Nevertheless, the direction of education appeared to be ambivalent and experienced complications.

The complications experienced during the decentralisation and the actors involved

The complications relate mainly to the fact that at the time of the transferral the basic education systems at State level were considerably different. Several States began assuming the control of primary, LS and pre-service and in-service teacher training. Some of them even started implementing reforms to support their new role. Notwithstanding, the speed at which the educational decentralisation progressed varied greatly from State to State (Tatto, 1999). The reasons why States

assumed the decentralisation at different speeds can be summarised as follows (for more detailed information please consult the appendix of the chapter)

First, the decision to decentralise was unilateral⁹⁵. (Barba 2000) There were no teacher union or political demands to decentralise the education system at State level, neither labour movements demanding it and mainly nor State wishing to operate its public education system. Therefore, the process was more an imposition and the values not commonly shared (Barba, 2000, Arnaut, 2003).

Second, the decentralisation was implemented regardless of States' differences. Those differences translate into the different speeds for the decentralisation to be completed⁹⁶. The local reception of the education responsibilities was subject to a number of intra-State issues, ergo the result was mixed. Some States had to adopt specific strategies (creation on an education institution) to process the transferral, although constrained by the framework established at central level. Some other States, in order to receive the education responsibility, had to amend the legal, institutional and labour frameworks to address differences in employee benefit schemes between the state and federal personnel transferred (Fierro Evans et al., 2009). Those adaptations created frictions between actors within the States, which can explain why in some more politicised contexts the decentralisation process took over a decade (Barba, 2000).

The situation of each State before the decentralisation is summarised in [Table A7](#). This table presents a characterisation of the local education systems based on the studies of Arnaut in 1999 and Evans and colleagues in 2009. The studies agreed that three types of States were

⁹⁵ The FG made the decentralisation an item in governments' agenda although it was not yet accepted in the public agenda. The decentralisation of education was a priority of the government in the most difficult times of economic crisis but it failed in making the education actors shared the view (Arnaut, 1998).

⁹⁶ Some other States, in order to receive the education responsibility, had to amend the legal, institutional and labour frameworks to address differences in employee benefit schemes between the state and federal personnel transferred (Fierro Evans et al., 2009). Those adaptations created frictions between actors within the States, which can explain why in some more politicised contexts the decentralisation process took over a decade (Barba, 2000).

operating prior decentralisation: 1) States with an education system very poorly developed, 2) States that despite having a local education system, education management was still done at Federal level and 3) States where local and federal education systems coexisted and the education management was divided between them. It is worth mentioning that the studies focused on whether each State could accept the education transferral, and at what speed.

Therefore the Table A7 shows that the first block are States with a very poor education system and ergo where the last ones in accepting the responsibilities of operating their own education system (slow speed of decentralisation process). The group in the middle were the second ones in operating the decentralised education system. Those States include those that had an education system already operating, although mainly the schools were regulated at federal level (medium speed of decentralisation). Finally, the last block are States that managed already around 40 to 50 percent of their schools under the State's education system, ergo those States were the ones that first could operate a decentralised education system (fast speed of decentralisation).

Table A7 Education system situation prior the ANMEB by State

Education Situation prior ANMEB in 1990	States
Education system very poorly developed	Oaxaca
	Hidalgo
	Tamaulipas
	Campeche
	Baja California Sur
	Querétaro
	Quintana Roo
	Aguascalientes
	Michoacán
	Morelos
Existence of a States' education system but education provision mainly managed at federal level	Colima
	Tabasco
	Guerrero
	Nayarit
	Coahuila
	Yucatan
	Chiapas
	Sinaloa
	San Luis Potosí
	Guanajuato
	Puebla
	Zacatecas
	Sonora
	Tlaxcala
	Chihuahua
Coexistence of federal and States' education system	Veracruz
	Durango
	Jalisco
	Nuevo León
	Baja California
	Estado de Mexico

Source: Own elaboration based on Arnaut, 1999 and Fierro Evans et al., 2009.

Third, the decentralisation assumed that the FG, States' governments the SNTE understand and agree with the ANMEB (Arnaut 1998; Fierro

Evans et al. 2009). Third, the decentralisation assumed that the FG, States' governments the SNTE understand and agree with the ANMEB. Nevertheless, in practice States had different understanding of their responsibilities as well as different relationships with teacher unions making in some States particularly difficult to absorb the transferred education system. Quintero and Chavoya (1990) stress that a major obstacle faced was that local governments had to develop strategies to establish a formal authority over f education services transferred. To achieve a balance of power between the new institutions and the current political actors, the new and old bureaucracies and the unions interacted. In some cases the new education institutions had to be integrated or merged with prior administrative structures within a short time. In other States previous education structures prevail several years as parallel structures. Furthermore, in some of those States to date two parallel education institutions operate to date (Fierro Evans et al., 2009).

Great importance had the CNTE in the decentralisation. Historically the CNTE had opposed the decentralisation and the implementation of the educational reforms. To solve difficulties with the unions some States requested federal arbitration on several occasions (Hernandez, 2006, Fierro Evans et al., 2009). Additionally, is important to note that CNTE had greater presence in entities that lacked local education system, which made the process of decentralisation more difficult and slow (Fierro, 2009).

Concern of this research is how the decentralisation history influenced the way the education transition to UPS operates in Mexico. It is important to keep in mind that the States assumed the responsibility of basic education; which involved only primary and LS level. Some States struggled more than others, but all of them accepted the transferral and created an education system and structure within each State. From then on, the education systems continued to grow and adapt to the particular

local characteristics and with that UPS level appeared to have emerged and merged within the new education structures.

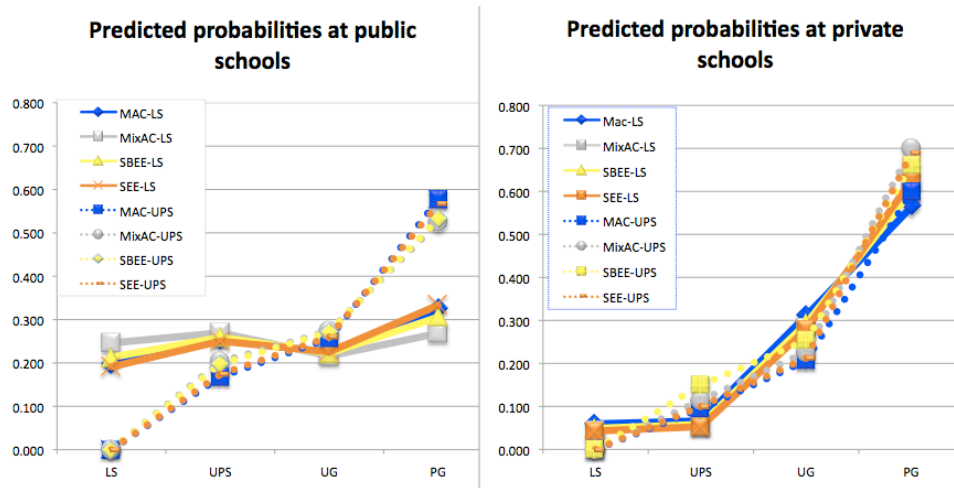
Meanwhile, all FG efforts and guidelines continued to revolve around the basic education provision with the goal of reaching universal basic education. Therefore, most of the federal promoted education policies implemented in the 90's and at the beginning of the new millennium had mainly basic education agenda (Ornelas 2004). The UPS level grew within States in the "shadow" of their basic education systems and furthermore obscure to the federal education ministry that did not interfered in the process.

Appendix Chapter 6

Table A8 Predicted Probabilities of model 1, 2 and 3 with additional for LS students in private schools

Transition Process	Expectations of LS students				Expectations of UPS students				
	LS	UPS	UG	PG	LS	UPS	UG	PG	
Public Schools	MAC	0.198	0.253	0.225	0.324	0.000	0.168	0.256	0.576
	MixAc	0.246	0.270	0.216	0.268	0.000	0.203	0.274	0.523
	SBEE	0.213	0.259	0.222	0.305	0.000	0.197	0.271	0.531
	SEE	0.191	0.250	0.225	0.333	0.000	0.174	0.260	0.566
Private schools	MAC	0.059	0.066	0.311	0.563	0.000	0.094	0.206	0.597
	MixAc	0.044	0.054	0.282	0.619	0.000	0.114	0.226	0.699
	SBEE	0.049	0.058	0.292	0.601	0.000	0.150	0.254	0.660
	SEE	0.043	0.053	0.279	0.625	0.000	0.100	0.212	0.688

Graph A3 Education expectation predicted probabilities differences between students in Public schools versus private schools



ANNEX 1

Methods used in Chapter 6:

ANOVA weighted sample tests and post-hoc tests

The ANOVA test calculates the variations in the following way:

$$F = \frac{\sum n(x - \bar{x})^2}{\sum (n - 1) S^2}$$

Where,

F = Anova Coefficient

x = Total number of populations

\bar{x} = Total number of samples in a population.

S = Standard deviation of the samples

n = Total number of observations.

The numerator is the mean sum of squares due to treatment and denominator is the mean sum of squares due to error.

Test for slope differences

The slope of a line is calculated with the following formula:

$$slope = \frac{A_y - B_y}{A_x - B_x}$$

Where:

A_x = the x coordinate of point A

A_y = the y coordinate of point A

B_x = the x coordinate of point B

B_y = the y coordinate of point B

The formula of the significant difference between slope involves the calculation of probability values for the difference between two slopes:
t-value for the difference between two slopes:

$$t = \frac{b_1 - b_2}{\sqrt{s_{b_1}^2 + s_{b_2}^2}}, df = n_1 + n_2 - 4$$

Where b_1 and b_2 are the slopes of lines 1 and 2, s_{b_1} and s_{b_2} are the standard deviations (SD) for lines 1 and 2, and n_1 and n_2 are the sample sizes for lines 1 and 2. The SD of the slopes are calculated with the values of the distribution of the focus variable. Moreover, the result obtained is probability value that the two slopes are significantly different from each other.

It is also important to observe whether such slope variations are significant. For this matter I use the test for slopes differences proposed by Cohen and Cohen in 1975 which is been used also in Sloper (2013). The test determines whether the slopes of two lines are significantly different from each other, and the result obtained is probability value that the two slopes are significantly different from each other.

Chi-square goodness of fit test

The test statistic is a chi-square random variable (X^2) defined by the following equation.

$$x^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where O_i is the observed frequency count for the i th level of the categorical variable, and E_i is the expected frequency count for the i th level of the categorical variable. The P-value is the probability of observing a sample statistic as extreme as the test statistic. Since the test statistic is a chi-square, it assesses the probability associated with the test statistic.

Quantile Regression

Quantile regression (QR) was introduced by Koenker and Bassett in 1978 (Koenker and Hallock 2001). The foundation of the analysis is that the effects of independent variables may not be constant throughout the dependent variable distribution (Koenker and Hallock, 2001). Therefore, the dependent variable may need to be divided into segments to calculate effects at different points. QR takes its name because it estimates conditional quantile functions.

It is relevant to mention that QR complements the ordinary least squares (OLS) regression approach (Koenker and Hallock, 2001). OLS estimates the unknown parameters in a linear regression model by minimising the sum of squared vertical distances between the observed responses and predicted responses. Moreover, OLS estimates how the predictor variables are related to the mean value of the dependent variable. Conversely, QR allows modelling the predictors against different locations of the dependent variable. In specific, QR computes the covariance and correlation matrices of the parameter estimates, and calculates the unknown effect at any desired percentile (Yang et al. 2012). Consequently, QR allows manipulating the empirical distribution and its estimates become more robust against outliers in the response measurements (Baum 2013). In that sense QR provides a richer characterisation of the data, and considers the impact of a covariate on the entire distribution of the dependent variable, not merely its conditional mean (Yang et al., 2012).

In the model I consider a random variable Y (ESCS or reading scores) dependent variables with a probability distribution function that can be expressed as (Buhai, 2005, Koenker & Hallock, 2001, cited in Yang et al. 2012):

$$F(y) = Prob(Y \leq y)$$

(1)

the τ th quantile of Y can be defined as:

$$Q(\tau) = \inf\{y : F(y) \geq \tau\} \quad (2)$$

Where $0 < \tau < 1$. Researchers can specify any values of τ to implement regressions. In the study of the effectiveness and efficiency of the selection the τ th quantile, $\xi(\tau)$, could be expressed as the solution of the optimization problem (without any covariates):

$$\min \sum_{i=1}^n p_{\tau}(y_i - \xi) \quad (3)$$

Where $p_{\tau}(Z) = Z(\tau - I(Z < 0)).I(\cdot)$ represents the usual indicator function. When the explanatory variables (x) are included, the τ quantile, $\xi(\tau)$, can be rewritten as $X'_i \beta$ and the linear conditional quantile function becomes $Q_Y(\tau | X = x) = X'_i \beta_{\tau}$.

Wald test

also implement the Wald tests for equality of coefficients across quantiles in order to understand whether the differences in estimates are statistically significant.

Specifically, for a pair of coefficients, say β_j^p and β_j^q , corresponding to the j th covariate at quantiles p and q , the following Wald statistics are used:

$$W^* = \frac{\beta_j^p - \beta_j^q}{\text{Var}(\beta_j^p - \beta_j^q)} \quad (5)$$

and $\text{Var}(\beta_j^p - \beta_j^q) = \text{Var}(\beta_j^p) + \text{Var}(\beta_j^q) - 2\text{Cov}(\beta_j^p, \beta_j^q)$ where $\text{Var}(\beta_j^p)$,

$var(\beta_j^q)$, $Cov(\beta_j^p - \beta_j^q)$ are the estimated variances and covariance for β_j^p and β_j^q obtained via bootstrapping.

ANNEX 2

Methods used in Chapter 7:

chi-square test of homogeneity

In principle, chi-square test allows to analyse data that is counted (number of cases or respondents) in different categories. Karl Pearson developed the chi-square test in its inception to test the goodness of fit for frequency curves; later, he extended it to contingency tables to test for independence between rows and columns (Stigler, cited by Franke, et al., 2012). The chi-square test developed by Pearson has three variations: goodness of fit, independence, and homogeneity. The first test was used in the previous chapter and its calculation and interpretation of results were described. The chi-square goodness of fit is the one that normally is applied correctly as it particularly requests the researcher to state the parameters of comparison. Nevertheless, the differences in the independence and homogeneity chi-square tests are less straightforward.. Not only they test different types of hypotheses, but also the assumptions in the samples to be compared are different. However the formula for computing them is essentially the same:

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i},$$

Ordered probit model

The central idea underlying an ordered response is that the variable is latent, continuously and randomly distributed; which means that it cannot be assumed that those who have the same response have the exactly same attitude towards education.

The latent continuous variable, y^* is a linear combination of some predictors, x , plus a disturbance term that has a standard Normal distribution:

$$y_i^* = X_i\beta + e_i, \quad e_i \sim N(0,1), \quad \forall i = 1, \dots, N. \quad (1)$$

y_i , the observed ordinal variable, takes on values 0 through m according to the following:

$$y_i = j \Leftrightarrow \mu_{j-1} < y_i^* \leq \mu_j \quad (2)$$

and standard deviation of one.

When the latent y^* crosses a cut point, the observed category changes. The probability of an observed outcome for a given value of X is the area between a pair of cut points. The probability of observing $y = m$ for given values of the X s corresponds to the region of the distribution where y^* falls between τ_m and τ_{m-1} :

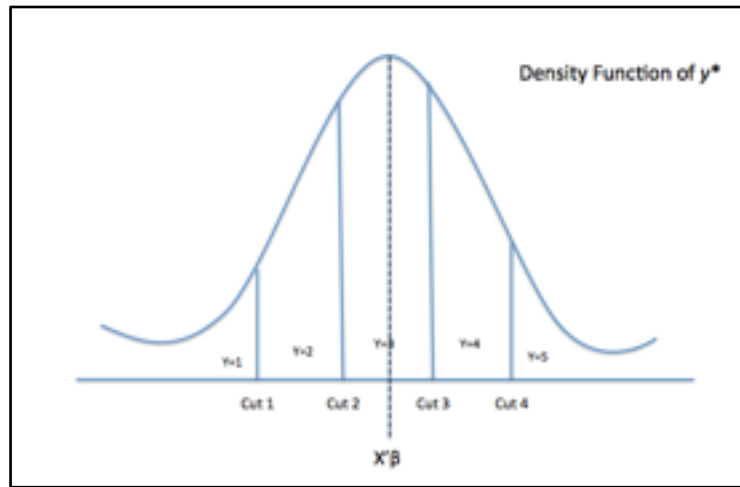
$$\Pr(y = m|X) = \Pr(\tau_{m-1} \leq y^* < \tau_m|X) \quad (3)$$

Substituting for y^* leads to the predicted probability in the ORM:

$$\Pr(y = m|X) = F(\tau_m - X\beta) - F(\tau_{m-1} - X\beta) \quad (4)$$

. The whole distribution shifts when the value of one variable changes in a direction of the corresponding β coefficient (see Figure A1). From the following diagram we can observe that a shift causes a change in the distribution of responses because the cut points are fixed. The absence of an intercept in the model is a consequence of $j-1$ cut points all being free parameters. One of the cut points are normalised to 0 then the intercept parameter would become identified and explicit in the model with the need to normalise either the intercept or one of the cut points (Daykin and Moffatt 2002).

Figure A1 Density Function of y^* (Highest Education Expectation)



Source: Long and Freese, 2006